

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, Report No. 32, of the Committee of the Whole (Public Hearing), which was adopted, as amended, by the Council of the City of Vaughan on June 24, 2014, as follows:

By receiving the following Communications:

- C4 and C6.** *Mr. Ryan Guetter, Weston Consulting, Millway Avenue, Vaughan, dated June 17, 2014;*
- C5.** *Ms. Rosemarie Humphries, Humphries Planning Group Inc., Chrislea Road, Vaughan, dated June 16, 2014;*
- C9.** *Mr. Mark van Stempvoort, dated June 17, 2014; and*
- C22.** *Ms. Caterina Facciolo, Bratty and Partners, LLP, Keele Street, Vaughan, dated June 23, 2014;*
- C28.** *Mr. Ryan Mino-Leahan, KLM Planning Partners Inc., Jardin Drive, Concord, dated June 24, 2014; and*
- C30.** *Mr. Billy Tung, KLM Planning Partners Inc., Jardin Drive, Concord dated June 24, 2014.*

6

NATURAL HERITAGE NETWORK
INVENTORY AND IMPROVEMENTS PHASES 2 TO 4
FINAL CONSULTING TEAM REPORT AND RECOMMENDATIONS
AMENDMENTS TO THE VAUGHAN OFFICIAL PLAN 2010
FILE 25.5.4

The Committee of the Whole (Public Hearing) recommends:

- 1) That the recommendation contained in the following report of the Commissioner of Planning, Interim Director of Planning/Director of Development Planning, and Manager of Development Planning, dated June 17, 2014 be approved;
- 2) That the presentation by Mr. Brent Tegler, North-South Environmental Inc., Crawford Crescent, Campbellville, Project Manager for the Natural Heritage Network Study, and the Senior Environmental Planner, Policy Planning Department, be received;
- 3) That the following deputations and communications be received:
 1. Mr. Robert Klein, Box 202, Kleinburg;
 2. Mr. Stephen Roberts, Bentoak Crescent, Vaughan;
 3. Ms. Elena Serebryany, Ner Israel Drive, Thornhill;
 4. Mr. David Toyne, Pine Valley Drive, Woodbridge;
 5. Mr. Sony Rai, Vaughan Mills Road, Vaughan, representing Sustainable Vaughan;
 6. Mr. David Brand, Camlaren Crescent, Kleinburg;
 7. Ms. Susan Walmer, Executive Director, Oak Ridges Moraine Land Trust, Dufferin Street North, King City;
 8. Mr. Simon Katznelson, Auburndale Drive, Thornhill, member of Preserve Thornhill Woods Association;
 9. Mr. Kevin Hanit, Queensbridge Drive, Concord;
 10. Mr. John Senisi, Maverick Crescent, Vaughan, Director, Eagle Hills Community Association;
 11. Mr. Evan Perlman, Weston Consulting, Millway Avenue, Vaughan, and Communications C29 and C30 from Mr. Ryan Guetter, Vice President, Weston Consulting, Millway Avenue, Vaughan, dated June 17, 2014;
 12. Mr. Boris Arkanov, Ner Israel Drive, Thornhill; and
 13. Ms. Alexandra Hatfield, Camlaren Crescent, Kleinburg; and

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 2

4) That the following communications be received:

- C4 Mr. Tim Jessop, Senior Planner, Weston Consulting, Millway Avenue, Vaughan, dated June 12, 2014
- C10 Mr. Michael T. Larkin, LARKIN Associates, Gorham Street, Newmarket, dated June 16, 2014;
- C11 Mr. Alan Young, Weston Consulting, Millway Avenue, Vaughan, dated June 16, 2014;
- C12 Mr. Kurt Franklin, Weston Consulting, Millway Avenue, Vaughan, dated June 16, 2014;
- C15 Ms. Rosemarie Humphries, Humphries Planning Group Inc., Chrislea Road, Vaughan, dated June 16, 2014;
- C16 Ms. Paula Bustard, Vice President, Development, SmartCentres, Applewood Crescent, Vaughan, dated June 17, 2014;
- C17 Mr. Christopher J. Williams, Aird & Berlis, Brookfield Place, Bay Street, Toronto, dated June 17, 2014;
- C18 Mr. Aidan Ferriss, IBI Group, Richmond Street West, Toronto, dated June 17, 2014;
- C19 Mr. Cam Milani, The Milani Group, Maple, dated June 17, 2014;
- C20 Mr. Jason Lewis, Davies Howe Partners LLP, Spadina Avenue, Toronto, dated June 17, 2014;
- C21 Mr. Antony Niro, Maple, dated June 17, 2014;
- C22 Mr. Mark McConville, Humphries Planning Group Inc., Chrislea Road, Vaughan, dated June 17, 2014;
- C23 Ms. Jane McFarlane, Weston Consulting, Millway Avenue, Vaughan, dated June 17, 2014;
- C24 Mr. Daniel Belli, Vice President, Real Estate, M.A.M. Group Inc., Dufferin Street, Vaughan, dated June 17, 2014;
- C25 Ms. Katarzyna Sliwa, Davies Howe Partners LLP, Spadina Avenue, Toronto, dated June 17, 2014;
- C26 Mr. Daniel Belli, Vice President, Real Estate, M.A.M. Group Inc., Dufferin Street, Vaughan, dated June 17, 2014;
- C27 Mr. Quinto M. Annibale, Loopstra Nixon LLP, Queens Plate Drive, Toronto, dated June 17, 2014;
- C28 Mr. Quinto M. Annibale, Loopstra Nixon LLP, Queens Plate Drive, Toronto, dated June 17, 2014; and
- C31 Ms. Juliana MacDonald, Planning Ecologist and Mr. Donald M. Fraser, Principal, Beacon Environmental, Main Street North, Markham, dated June 17, 2014.

Recommendation

The Commissioner of Planning, Interim Director of Planning/Director of Development Planning, and Manager of Policy Planning recommend:

1. THAT this report BE RECEIVED and that any issues raised at the Public Hearing, or raised in subsequent correspondence, be addressed by the Vaughan Planning Department's Policy Planning Division in a future Technical Report to the Committee of the Whole in respect of:
 - a) the final reports of the Natural Heritage Network Study, prepared by North-South Environmental Inc. in collaboration with the LURA Group, Orland Conservation and R.J. Burnside Associates, forming Attachment 1 and Attachment 2 to this report;
 - b) the draft amendments to the Vaughan Official Plan 2010, as set out in Section 6 of this report.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 3

Contribution to Sustainability

Two specific action items in Green Directions Vaughan (2009), the City's Community Sustainability and Environmental Master Plan, relate to the need to complete a natural heritage system.

1.3.2. Through the development of the City's new Official Plan, and in partnership with the Toronto and Region Conservation Authority, ensure protection of remaining natural features and explore opportunities for habitat restoration in headwater areas, along riparian corridors, and around wetlands.

2.2.4. Develop a comprehensive Natural Heritage Strategy that examines the City's natural capital and diversity and how best to enhance and connect it. As part of this action:

- *Develop an inventory of Vaughan's natural heritage, and identify opportunities for habitat restoration;*
- *Ensure that policies in the City's new Official Plan protect all ecological features and functions as per current provincial and regional policies, and also include consideration for locally significant natural features and functions;*
- *Develop policies to create opportunities for near urban agriculture within Vaughan's rural areas, through policies described in the City's new Official Plan.*

The refinement of the Natural Heritage Network and development of a stewardship strategy in Phases 2 through 4 of the Natural Heritage Network Study are key components in support of Green Directions Vaughan.

Consistent with Green Directions Vaughan, the Environmental policies in Chapter 3 of VOP 2010 direct that appropriate studies be undertaken to determine the precise limits of "natural heritage features and any additions to the mapped network". VOP 2010 is consistent with the York Region Official Plan policies, which directs local municipalities to develop local greenlands systems.

Economic Impact

Funding for undertaking the Natural Heritage Network Study was included in the 2011 Capital Budget (PL-9025-11) on the basis of a two part allocation. Phase 1 was treated as a stand-alone project and was funded in the amount of \$52,400. In the 2012 Capital budget, the funding for Phases 2, 3, and 4 was approved at \$199,700. The total budget for the preparation of the Natural Heritage Network Study is \$252,100.

Communications Plan

A communications and public consultation plan was implemented as part of the process of conducting Phases 2 to 4 of the Natural Heritage Network Study. A summary of stakeholder and broader public consultation is provided in this staff report.

Notice of this meeting has been communicated to the public by the following means:

- Advertised in the Vaughan Citizen and Thornhill Liberal on May 29, 2014;
- Posted on the www.vaughan.ca online calendar, Vaughan Tomorrow website www.vaughantomorrow.ca City Page Online;
- Posted to the City's social media sites, Facebook and Twitter;
- By Canada Post to ratepayer associations; and to all those requesting notification specific to the Natural Heritage Network;

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 4

- By Canada Post to almost 1400 addresses on the Vaughan Tomorrow/Official Plan Review mailing list; and,
- To the Official Plan Review/Natural Heritage Network/VOP appellant e-mail lists.

Purpose

This report presents the findings of the Natural Heritage Network (NHN) Study for the purposes of obtaining public comment prior to its finalization. This staff report summarizes:

- The findings of the NHN Study with respect to the criteria for Core Features and Enhancement Areas of the NHN;
- Recommended amendments to select policies of Chapter 3 (Environment) and Schedules of the VOP 2010 for which this meeting serves as the statutory public hearing under the *Planning Act*; and
- Elements of a work plan to implement the findings of the NHN Study, including interpreting the Conservation Land Securement Strategy document, to improve the NHN over time.

A future Technical Report(s) to the Committee of the Whole will be prepared with recommendations, in response to input from the Public Hearing, comments in writing thereafter, and any additional comments from public agencies, which will form the basis for the approved Natural Heritage Network Study and the finalization of the amendments to VOP 2010 for the purposes of their adoption by Council.

Background - Analysis and Options

1. The Policy and Planning Context

A rigorous Provincial and Regional policy framework provides direction in the maintenance, restoration, or improvement of the diversity and connectivity of natural features and the long-term ecological function and biodiversity of natural heritage systems in the Greater Toronto Area. This policy framework is reflected in the environmental policies of VOP 2010. The following policy documents were consulted in the preparation of the environmental policies of VOP 2010 and the Terms of Reference for Phase 1 and Phases 2 to 4 of the Natural Heritage Network Study:

- The Growth Plan for the Greater Golden Horseshoe (2006);
 - The Provincial Policy Statement (2005) and the Natural Heritage Reference Manual - Second Edition (2010);
 - The Greenbelt Plan (2005);
 - The Oak Ridges Moraine Conservation Plan (2002);
 - The Endangered Species Act (2007);
 - The Ontario Biodiversity Strategy (2011);
 - The York Region Official Plan (2010); and
 - Ontario Regulation 166/06 under the Conservation Authorities Act.
- a) Provincial Policies
- i. The Growth Plan for the Greater Golden Horseshoe – Places to Grow

The Province of Ontario approved the Growth Plan for the Greater Golden Horseshoe (GGH) - Places to Grow in 2006. The Growth Plan sets out a vision for growth in the GGH to the year 2031. This includes a set of long-range growth forecasts and direction on how growth should be accommodated and managed effectively.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 5

The Growth Plan supports the role of municipal policy in providing leadership and innovation in developing a culture of conservation. The Growth Plan also encourages planning authorities to identify natural heritage features and areas that complement, link, or enhance natural systems. Municipalities are encouraged to develop a system of publicly accessible parkland, open space and trails embedded in a natural heritage system as well as establish an urban open space system within built-up areas, which include rooftop gardens, communal courtyards, and public parks.

ii. The Provincial Policy Statement

The Provincial Policy Statement (PPS) has a strong focus on the long-term prosperity and environmental health of Ontario. It states that “*natural features and areas shall be protected for the long-term*” (PPS 2.1.1) and the “*long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved*” (PPS 2.1.2). The PPS defines natural features and areas as:

“features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valley lands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area”.

The PPS also defines natural heritage system as:

“A system made up of natural heritage features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state”.

The revisions to the PPS in 2014 include a new policy to complete natural heritage system planning in southern Ontario (PPS 2.1.3), as excerpted below:

“Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.”

iii. The Greenbelt Plan

The Greenbelt Plan contains policies for providing permanent agricultural and environmental protection as well as providing for a wide range of recreation, tourism and cultural opportunities. The Protected Countryside area comprises an Agricultural System and a Natural System, together with a number of settlement areas. It is intended to improve linkages between these areas and surrounding systems. The Natural System identifies lands that support both natural heritage and hydrologic features and functions. The Greenbelt Plan recognizes that the Natural System extends beyond the boundaries of the Greenbelt and encourages connections between the Greenbelt’s Natural System and the broader scale natural heritage systems of southern Ontario. Criteria have been defined to permit potential municipal requests to expand the Greenbelt. The Greenbelt Plan will be subject of a forthcoming Provincial government statutory review. This is addressed later in the report.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 6

iv. The Oak Ridges Moraine Conservation Plan

The Oak Ridges Moraine Conservation Plan (ORMCP) is a fundamental component of the Greenbelt Plan. The Oak Ridges Moraine is an environmentally sensitive, geological landform in south central Ontario, covering 190,000 ha. It has a unique concentration of environmental, geological and hydrological features that make its ecosystem vital to south-central Ontario. The ORMCP identifies four categories of land use: Settlement; Countryside; Natural Linkage; and Natural Core. The latter two designations are the most restrictive, and provide the most aggressive goals for the protection of natural heritage. The Oak Ridges Moraine Conservation Plan will be subject of a forthcoming Provincial government statutory review. This is addressed later in the report.

v. Endangered Species Act

The new Endangered Species Act (2007) is the first in Canada to combine mandatory habitat protection with a science-based approach to listing species for protection. Species thought to be at risk are assessed by The Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent body that reviews species based on the best available science, including community knowledge, and Aboriginal Traditional Knowledge. Once species are classified as "at risk", they are added to the Species at Risk in Ontario (SARO) list in one of four categories. Endangered, threatened, special concern and extirpated species on this list automatically receive legal protection under the ESA 2007. Providing legal protection to threatened species is a change from the original Act which only applied to endangered species. Under the ESA 2007, it is legally required to protect direct and indirect habitat of endangered species. Habitat regulations under the Act are available for Redside Dace (Regulation 293/11), which is relevant to the NHN Study in Vaughan.

vi. Ontario's Biodiversity Strategy, 2011

Ontario's Biodiversity Strategy, 2011 is the guiding framework for coordinating the conservation of Ontario's variety of life and ecosystems. The success of this Strategy will be tracked through 15 specific targets representing key areas of focus for biodiversity conservation in Ontario. The progress will be monitored and assessed over a 10-year time frame to encourage people across all sectors to take actions that will ultimately lead to securing and maintaining Ontario's biodiversity. Several of the 15 targets refer directly to implementing natural heritage systems for biodiversity conservation, maintaining and enhancing ecosystem services, and reporting on the state of Ontario's biodiversity.

b) York Region Official Plan (YROP)

The York Region Official Plan (ROP 2010), approved by the Minister of Municipal Affairs and Housing on September 7, 2010, is the upper tier planning document that provides the framework for achieving the Region's urban structure. The ROP 2010 received a number of partial approvals by the Ontario Municipal Board between July 11, 2012 and March 5, 2013. Chapter 2, "A Sustainable Natural Environment", was included in the July 11, 2012 partial approval.

Any amendments to the City's Official Plan must conform to the Region's Official Plan. The ROP 2010 recognizes the importance of integrating the objectives of the natural environment with those for healthy communities and economic vitality as outlined in its Sustainability Strategy (2007). The importance of maintaining and enhancing a healthy Regional Greenlands System is emphasized in the ROP 2010.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 7

The Region's policy framework has been brought into conformity with the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, the York Region Significant Woodlands Study (2005), among other important policy documents, which will serve to identify and protect the Greenlands System. The primary function of the Regional Greenlands System is:

“... the protection of natural heritage features in a system of cores connected by corridors and linkages. The Regional Greenlands System also provides opportunities for passive recreation in a future Regional Trails System such as hiking and nature appreciation. Urban uses and infrastructure projects should contribute ecological gains to the Regional Greenlands System through enhancement and restoration, and the strategic creation of natural habitat.”

It is the intent that the Vaughan Natural Heritage Network (NHN) and supporting policies be consistent with the objectives identified in the ROP 2010.

c) Toronto and Region Conservation Authority Policy and Regulation

The province has delegated approval authority to the Toronto and Region Conservation Authority (TRCA) for the Natural Hazard section of the PPS. The TRCA also has a commenting role on development applications submitted to the municipality under the Planning Act for aspects of water resource systems and natural heritage. They rely on four key instruments to guide their comments and permitting: the Terrestrial Natural Heritage System Strategy (2007); watershed plans; the Valley and Stream Corridor Management Program (1994); and Regulation 166/06 under the Conservation Authorities Act.

The objective of the TRCA Terrestrial Natural Heritage System (TNHS) is to identify and evaluate natural heritage features and functions within the landscape, for inclusion in a Natural Heritage System. The Humber River Watershed Plan and Don River Watershed Plan describe the TNHS for the respective watersheds and include implementing recommendations regarding land use, outreach and stewardship.

Watershed Plans are mandated under the Oak Ridges Moraine Conservation Plan. The Humber River Watershed Plan: Pathways to a Healthy Humber and the Implementation Guide (2008) and the Don River Watershed Plan: Beyond 40 Steps and Implementation Guide (2009) provide guiding principles and objectives that support strategies and targets that include the protection and expansion of the terrestrial natural heritage system, building sustainable communities and creating an enhanced regional open space system.

The TRCA's Valley and Stream Corridor Management Program outlines policies that seek to retain watercourses and valley and stream corridors as open, natural landforms, from the headwaters to the river estuary marshes. These policies guide the TRCA Planning and Development staff when reviewing applications under Ontario Regulation 166/06 and in commenting on land use planning policy documents and development applications.

Ontario Regulation 166/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, is the regulation under Section 28 of the Conservation Authorities Act that is specific to the TRCA. The main objectives of O.R. 166/06 are to ensure public safety and protect property with respect to natural hazards and to safeguard watershed health by preventing pollution and impacts to sensitive environmental areas such as wetlands, shorelines and watercourses.

On May 6, 2014 the TRCA released the revised draft of “The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority” (the “LCP”) for a final round of public consultation. The LCP document contains the principles,

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 8

goals, objectives, and policies approved by the TRCA Board for the administration of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. The 'Living City Policies' document supersedes all of Sections 1 through 4 and elements of Sections 5 and 6 of the Valley and Stream Corridor Management Program and clarifies the current practice of TRCA's role as a watershed and shoreline manager, regulator, commenting agency, service provider, and landowner in the context of the planning and development process. Its final approval is expected in the Fall of 2014

d) Initiatives Pertaining to the Long-Term Maintenance, Restoration and Improvement of the NHN

There are several important initiatives that are either underway or imminent that have the potential to affect the City's Natural Areas. The Natural Heritage Network study will provide a basis for participating in the respective processes, for the purposes of identifying and protecting high value features and where necessary, developing mitigation strategies and compensation programs.

i. The GTA West Corridor Study

Stage 2 of the Ontario Ministry of Transportation (MTO) GTA West Corridor project is currently underway. This will focus on identifying the route and developing the preliminary design for a new transportation corridor. The new corridor will extend from Highway 400, between Kirby Road and King-Vaughan Road to the western part of the GTA, with a north-south link to the planned extension of Highway 427 to Major Mackenzie Drive, immediately to the west of Kleinburg-Nashville. It will feature a 400-series highway, a transitway, and potentially goods movement priority features. The Preliminary Route Planning Study Area in the City of Vaughan is an approximately 2 kilometre wide corridor extending from Kirby Road and King-Vaughan Road near Highway 400 and extending from north of Major Mackenzie Drive proceeding south, to accommodate the Highway 427 link at the Peel Region boundary. It has the potential to fragment the natural habitat of the NHN inside and outside of the Greenbelt Plan area and affect both publicly and privately owned lands.

ii. Provincial Review of the Greenbelt Plan and Oak Ridges Moraine Conservation Plan

The Greenbelt Plan, released in 2005, protects a large area of agricultural lands within the Greater Golden Horseshoe. Included within the Greenbelt Plan area are lands subject to the Niagara Escarpment Plan and lands subject to the ORMCP. To coordinate reviews of these three Plans, the Province delayed reviews of the latter two Plans until 2015, ten years following the release of the Greenbelt Plan.

York Region staff brought forward a report to the Region's Committee of the Whole (Clause No. 7, Report No. 7, April 3, 2014) providing high-level comments on the Greenbelt Plan and ORMCP as a preliminary assessment, in preparation for the Province's formal review. The Region's report concludes, in part:

"The Province should be commended on these Plans and the successes achieved through 10+ years of implementation of the Greenbelt Plan and ORMCP. The Region encourages comprehensive and coordinated consultation involving the Greenbelt Plan, the ORMCP, and the Growth Plan. Notwithstanding the success of these plans, improvements can still be made during the upcoming Provincial review. The Province is requested to both conduct a comprehensive and collaborative review process and consider the input provided in this report to ensure that these Plans continue to protect and enhance environmental and agricultural protection with the Greater Golden Horseshoe, while providing for growth and economic vitality in a sustainable manner."

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 9

An agricultural landscape can be very supportive of biodiversity and the Natural Heritage Network. Results of the NHN Study will inform the City's input on the role of the Natural Heritage System overlay of the Greenbelt Plan and the Natural Core, Natural Linkage and Countryside designations of the ORMCP.

iii. The City of Vaughan New Community Areas: The Blocks 27 and 41 Secondary Plans

The York Region Official Plan and VOP 2010 identify two areas which will provide for urban expansion to assist in fulfilling the City's mandated population growth to 2031. The City will be embarking on the Secondary Plan preparation processes for both Blocks 27 and 41 in the Fall of 2014. To support the preparation of the Secondary Plans, individual Subwatershed Plans will be prepared for the Block 27 area (The Don River Headwaters) and Block 41 Area (The Humber River Headwaters). The Natural Heritage Network Study will inform the development of both Subwatershed Studies and the preparation of the Secondary Plan level environmental policies.

2. Relationship to Green Directions Vaughan and VOP 2010

The protection, restoration and enhancement of natural areas in the City's Natural Heritage Network is one supporting action, directed at achieving healthy and vibrant communities, that is reflected in the City's sustainability strategy, Green Directions Vaughan. While two action items in Green Directions Vaughan specifically address the Natural Heritage Network (Action Items 1.3.2 and 2.2.4), related actions also support a more comprehensive and integrated approach to improve open space and natural areas for community benefits, including: the implementation of green infrastructure (e.g. treatment train approach to stormwater management and urban forests); the provision of recreation, open space, trails and other active transportation paths; and support for agricultural initiatives. The scope of the Natural Heritage Network Study has a clear focus on biodiversity persistence and sustaining key ecological functions. However, the benefits to residents through the provision of ecosystem services (e.g. clean air, clean water, flood protection, carbon sequestration) and the amenity value of the City's existing and restored natural areas is a critical broader context for the NHN Study, which contributes to the quality of life.

Achieving key milestones of the NHN Study is also a requirement for the initiation of the New Community Areas Secondary Plan process. Policy 10.1.1.2 of VOP 2010 provides:

*The initiation of the **New Community Areas** Secondary Plan(s) within the Region of York Official Plan Amendment No. 2 Area, as shown on Schedule 1, will not proceed until the Natural Heritage Network Study is substantially completed. For the purpose of the Natural Heritage Network Study substantial completion means the submission by the landowners within the ROPA 2 amendment area of information in a format and at a level of detail consistent with the TRCA, York Region and City of Vaughan policies, a report to Committee of the Whole and Council on the findings of Phase 1 of the Natural Heritage Network Study and Council approval of the Terms of Reference for Phases 2-4.*

The City will be proceeding with the issuance of Requests for Proposals for the preparation of the Secondary Plans, based on the following outcomes:

- a) Phase 1 of the NHN Study has been completed and a staff report summarizing the findings was provided to Committee of the Whole (Working Session) on December 4, 2012. Committee of the Whole recommended that a summary of the public consultation component be provided to the January 15, 2013 Committee of the Whole meeting; and Phase 1 was subsequently approved by Council on January 29, 2013.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 10

- b) The Terms of Reference for Phases 2-4 of the NHN Study was approved by Council on September 25, 2012, and the consulting contract for the corresponding Request for Proposal (RFP) was awarded on January 29, 2013. The work plan for Phases 2-4 of the NHN Study has been underway since May 2013 and this report is one of the last steps in the process leading to the finalization and approval of the Natural Heritage Network Study.
- c) The City and TRCA staff have been working with the landowners and their consulting teams to discuss data sharing and data interpretation. This process is on-going and has led to an agreement on the approach to undertaking the Secondary Plans and on the terms of reference for the Subwatershed Studies. The data exchanged to date and the on-going consultation will satisfy the test of policy 10.1.1.2 which requires, *“the submission by the landowners within the ROPA 2 amendment area of information in a format and at a level of detail consistent with the TRCA, York Region and City of Vaughan policies”*.

One of the potential outcomes of the Natural Heritage Network Study was amendments to VOP 2010. Such amendments would address any policy deficiencies in the VOP 2010 and reflect any potential changes in the system boundaries and a refinement of the Enhancement Areas. As a result, a draft amendment to VOP 2010 has been prepared to implement the findings of the Natural Heritage Network Study to modify Schedule 2 and relevant policies in Section 3.2, “Components of Vaughan’s Natural Heritage Network”, and Section 3.3, “Features of the Natural Heritage Network”. Schedules may also be added to delineate natural features according to Section 3.3, “Features of the Natural Heritage Network”.

3. Public Consultation Strategy

The public consultation approach identified key stakeholder groups as well as the general public to provide opportunities to participate in the development of Vaughan’s NHN. The following key messages were emphasized.

- Balancing urban growth and natural heritage conservation is important to Vaughan’s long-term development, and can be achieved in part through the NHN.
- The community engagement process will provide stakeholders and members of the public with the opportunity to participate in the development of Vaughan’s NHN. The feedback collected through the engagement process will be used to inform decision-making as the NHN Study progresses.
- Everyone’s voice is important. The City wants to hear from as many people as possible.

The following activities have taken place comprising the public consultation approach.

a) Targeted Stakeholder Meetings

Meetings were held with landowners (and their agents) of lands that will develop to provide an update on the NHN Study. The main action item from the meetings was to share information and discuss data interpretation in technical meetings.

Two stakeholder sessions were held for a range of interested parties including representatives of utilities, public agencies, and environmental organizations. A session was also held for internal staff to update the consulting team on related projects, such as for infrastructure, parks and other matters related to asset management.

- September 19, 2012 and October 10, 2012 – Individual meetings with landowners and agents for Blocks 27, 41, 40/47, 55, 59 and 60.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 11

- September 19, 2012 – Evening meeting for community consultation at Vellore Hall.
- September 20, 2012 - Evening meeting for community consultation at Vaughan City Hall.
- October 19, 2012 - Presentation by City staff to BILD at offices of Cole Engineering.
- October 21, 2013 – Community consultation including mostly representatives of public commenting agencies and utilities.
- October 29, 2013 – Presentation by the City's consultants to City staff.
- February 24 to 26, 2014 - Individual meetings with landowners and agents for Blocks 27, 41, 34/35, 55, 59 and 60.
- March 3, 2014 – Community consultation with environmental not-for-profit organizations.
- March 24, 2014 – Meeting with City staff and Sustainable Vaughan.
- March 27, 2014 – Presentation by the City's consultants and City staff to the Kleinburg and Area Ratepayers Association.

b) First Nations

The City of Vaughan contacted First Nations and Metis organizations by telephone and E-mail according to the protocol in the draft York Region First Nation and Metis Consultation Tool. The Consultation Tool is a component of Amendment 6 to the York Region Official Plan, including the York Region Archaeological Management Plan, adopted February 20, 2014, establishing specific policies to ensure the responsible management of archaeological resources, as required by Provincial policy and legislation.

The Consultation Tool includes a contact database with over 40 individual contacts for 14 First Nation or Metis organizations. The following consultation meetings were arranged based on the responses to the City's correspondence.

- March 26, 2014 – Presentation by City staff to Williams Treat First Nation at Chippewas of Scugog Island First Nations.
- April 28, 2014 – Tele-conference call with Huron Wendat First Nation.

c) Public Meetings

The meeting of the Committee of the Whole (Public Hearing) represents the seventh public meeting on the NHN Study from 2012 to 2014. Four of the public meetings were structured as an open house or community forum. The last two public events on November 13, 2013 and May 22, 2014 were structured to provide more interactive discussion by setting up break-out stations for smaller group discussions. A list of all public meetings is provided below.

- June 28, 2012 – Open House at City of Vaughan for Phase 1;
- October 4, 2012 – Open House at City of Vaughan for Phase 1;
- December 12, 2012 – Committee of the Whole (Working Session) presenting findings of Phase 1 of the NHN Study;
- November 13, 2013 – Community Forum at City of Vaughan for Phases 2-4 in conjunction with the City's Community Climate Action Plan;
- December 3, 2013 - Committee of the Whole (Working Session) presenting an update on progress on Phases 2-4;
- May 22, 2014 – Open House for Phases 2-4; and
- June 17, 2014 – Committee of the Whole (Public Hearing) presenting the final consulting team report at a Statutory Public Meeting.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 12

d) Interactive Information and Updates

Prior to the Community Forum on November 13, 2013, the following materials were made available on the City's project web site and by E-mail notification.

Newsletter and Notification of Public Meeting

An e-mail was sent to the broad distribution list established through the Official Plan review process and revised in Phase 1 of the NHN Study with a notification of the Public Meeting and Issue #1 of the NHN Newsletter.

Interactive Maps in Adobe Acrobat Format

Consistent feedback from the public in Phase 1 of the NHN Study was to provide NHN information as map products, ideally as interactive data through a Geographic Information System (GIS). While the City is not able to provide interactive GIS data, the consulting team provided maps in Adobe Acrobat format with layers that can be turned off and on. While only a subset of data compiled in Phase 1 could be displayed in the Adobe Acrobat maps, it provides the opportunity for input into setting priorities for modifications to the NHN.

Online Survey

An online survey has the objective to seek input from the public about areas of importance and/or priorities for conservation for the NHN. The survey is structured in three parts: Part A seeks input on the broad vision and goals of the NHN; Part B provides illustrative examples of ecosystem targets intended to generate qualitative feedback about specific areas and/or ecological themes of importance; and Part C invites the respondent to stay connected to the process.

Twitter Messages

Messages sent through the City's Twitter feed were coordinated with the Community Climate Action Plan.

e) Summary of Landowner Feedback: New Community Areas and Designated Development Blocks

As noted in paragraph a) above, a number of meetings took place in February 2014 with the landowner's and their agents in respect to the preparation of the Natural Heritage Network Study. These owners represented a substantial portion of the blocks for which development approvals are on ongoing or imminent within the headwater drainage areas of the City. This information assisted in informing the development of the NHN Study and the resulting policy response. The following is a synopsis of the matters discussed:

- Field observations of the City's consulting team regarding headwater drainage features (HDFs) and significant wildlife habitat was shared with the landowners that provided permissions to enter properties.
- There was general agreement that the Draft Significant Wildlife Habitat Ecoregion Criteria provided by the Ministry of Natural Resources are appropriate to determine thresholds for significant wildlife habitat. There were no disagreements with the findings of the City's consultants regarding areas of significant wildlife habitat. Areas of amphibian linkages are recognized as notional and would be dependent on more detailed studies as part of obtaining development approvals.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 13

- It is recognized that headwater drainage features (HDFs) evaluations are now a standard requirement of environmental assessments for development approvals. There was a suggestion from landowners and their agents that HDFs evaluated for “conservation” (rather than “protection” or “mitigation”) could include options to integrate the hydrological functions into stormwater management facilities. The City and City’s consultants indicated that, for the purposes of the NHN Study, HDFs evaluated for “conservation” are intended to remain as features and be integrated into the NHN or open space system.
- There was discussion of the available data regarding flow regime and thermal regime to determine permanent, intermittent and ephemeral streams. City staff and the City’s consultants described that there is insufficient information to categorize all drainages and that studies are demonstrating that decisions about drainages require site-specific information. Hence, all drainages that are mapped are included in the Core Features as a precautionary approach.
 - Landowners and their agents commented that information provided according to the appropriate standards and procedures and a suitable level of detail should be incorporated into the findings of the NHN Study. This feedback was considered by the City and the mapping of some HDFs as Core Features of the NHN was changed based on a comparison of the HDF evaluation undertaken by the City’s consultants and the HDF evaluation provided by the landowners, as described in more detail in this staff report in the section on headwater drainage features.
 - The HDF assessment was also discussed in the broader context of planning principles for efficient urban design and the need for alternative engineering design standards, such as for low impact development measures and/or green infrastructure.
 - Aspects of the HDF evaluation were discussed, including: interpretation of upstream connectivity incorporated into the assessment; and assessing downstream condition (discharge inverts and elevation) to understand how to preserve hydrologic functions.
- It was identified that the watercourse data used for the NHN Study includes inconsistencies and is outdated. The City and the City’s consultants recognize the need to correct information where information is clear, such as from development approvals, but that the watercourse data is the best that is available.
- The rationale for using a 30 metre buffer to stream reaches, for those stream reaches not in a defined valley according to the ‘crest of slope’ data, was explained by City staff and the City’s consultants and is based on the scientific literature that a 30 metre naturally vegetated buffer is a minimum for attenuating pollutant inputs and erosion.
- The ‘crest of slope’ digital layer provided by the TRCA was considered suitably accurate for the purposes of the NHN mapping. It was understood by landowners, City staff and the City’s consultants that valley limits would be more accurately defined based on site visits and appropriate studies as part of a development application. As a result, there was discussion of including a caveat on any map product that displayed the ‘crest of slope’, such as the notation, “To be confirmed on a site specific basis”.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 14

- The decision was questioned to include a 30 metre minimum vegetation protection zone to all wetlands, including non-evaluated wetlands as well as Provincially Significant Wetlands. City staff and the City's consultants responded that VOP 2010 policy 3.2.3.4 includes all wetlands as Core Features, but feature-based policies (VOP 2010 policy 3.3.2.1 and 3.3.2.2) provide flexibility to assess non-evaluated wetlands for significance.
- There was some discussion of the Critical Function Zone (CFZ) for wetlands. City staff and the City's consultants indicated that a CFZ other than a 30 metre vegetation protection zone for wetlands not be incorporated into the Core Features. A CFZ can be a component of NHN scenario testing. It is also a component of an EIS or MESP as part of the analysis of adjacent lands to wetlands, considering wetland attributes and functions such as wetland size, species present (and their habitat requirements), and existing habitat surrounding the wetland.
- The presentation by the City's consultants that waterbodies are to be included as Core Features raised a question about protection of such features in the Provincial Policy Statement (PPS) for waterbodies. This prompted City staff and the City's consultants to review the PPS and York Region Official Plan policies regarding "surface water features".
- Improvement to the NHN in terms of quality or condition was discussed as opposed to areal extent. The City and City's consultants noted that a recommendation will be made to pursue a habitat compensation protocol so that the City develops a framework to assess habitat area compensation versus restoration compensation (in the existing NHN).
- Site-specific data was discussed regarding features such as woodlands and valleylands, including mapped elements such as Enhancement Areas. Changes were made to Enhancement Areas consistent with a sharper focus of the criteria for Enhancement Areas, which is subsequently described in the consulting team report.
- The process to amend the VOP 2010 was discussed: adding map products/schedules to delineate features as recommended by the Province and York Region; and new policy language may be required to recognize what elements of Schedule 2 are more flexible.

4. Phase 1 of the Natural Heritage Network Study

Phase 1 of the NHN Study was completed in November 2012 and a report was provided to Committee of the Whole (Working Session) in December 2012. The expectations set out in the Terms of Reference for Phase 1 of the NHN Study were met. A comprehensive GIS database was developed and delivered to the City, recommendations to revise the Environmental Management Guideline were provided, and recommendations for field investigations assisted not only to identify sample sites, but also to finalize survey protocols.

One of the early findings of the effort to compile a comprehensive GIS database included the identification of data gaps. In particular, recent approvals of some developments have resulted in changes to feature boundaries, but the available environmental information layers show previous land classifications. Many of these situations for woodlands, wetlands and ANSIs have been corrected in Phase 1, but these situations will continue to be identified through review and consultation in Phase 3 of the Study. Such data discrepancies highlight the need for more detailed and refined GIS layers for Vaughan and an appropriate protocol to track changes.

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 15

The development of NHN targets and an assessment of the NHN against the targets to understand the biodiversity contribution of existing natural areas were identified as requiring further work in Phases 2 and 3. The key lesson learned in Phase 1 was to undertake spatial modelling of enhancement area options to identify and test NHN targets in an iterative analysis. This will be the primary task of the consulting team in the coming months.

5. Phases 2 to 4 of the Natural Heritage Network Study

The Terms of Reference for Phases 2 to 4 essentially described elements of work to refine the NHN criteria through field investigations (Phase 2) and data analysis, synthesis and recommendations (Phase 3). Phase 4 was described in the Terms of Reference specifically to develop a long-term land securement strategy. These work plan elements are summarized below.

a) Field Investigations

Field investigations were undertaken between April 2013 and September 2013. As described in the Terms of Reference for the NHN Study, the field investigations were targeted to sampling headwater drainage features and lands potentially meeting criteria for Significant Wildlife Habitat as defined in the PPS.

i. Headwater Drainage Features

Of the 57 headwater drainage feature (HDF) sample sites visited in the Spring of 2013, 12 were re-visited to sample Summer conditions according to the standards in the Ontario Stream Assessment Protocol and “Evaluation, Classification and Management of Headwater Drainage Features Guideline” prepared by the Toronto and Region Conservation Authority and Credit Valley Conservation (TRCA 2013). The results of the HDF assessment are incorporated into revisions of the NHN boundaries in Schedule 2 of the VOP 2010 only in cases where: (a) information provided by landowners was completed according to the HDF guideline (TRCA 2013) noted above; and (b) the assessments of the landowner and the City’s consulting team were in agreement and resulted in a management recommendation in which the drainage feature is classified as “mitigation”. In such cases, the reaches were not included in the Core Features of the NHN.

It was determined that a sub-sample of drainage features assessed according to the HDF guideline document (TRCA 2013) could not be used effectively to assign a conservation ranking or management recommendation to other drainage features that were not assessed in the field. Rather, the use of the HDF guideline (TRCA 2013) provides information which can be used to inform the Terms of Reference for a Master Environment and Servicing Plan (MESP) or Environmental Impact Study (EIS) as part of the development review process. The headwater drainage features can then be assessed and confirmed as part of these processes.

ii. Significant Wildlife Habitat

Breeding bird sampling was undertaken targeting open meadow habitat and forest clusters. A total of 50 sites were sampled two times following Breeding Bird Atlas protocols. A total of 71 stations were sampled to assess potential amphibian breeding habitat and sites were sampled following Marsh Monitoring Protocols with each station surveyed three times. Bluff communities were visited to search for potential colony nesting bird habitat and to look for potential significant plant communities such as prairie. A total of 41 bluff communities were visited.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 16

The thresholds for confirming significant wildlife habitat (SWH) were based on the Draft SWH Ecoregion 6E Criterion Schedule and the Draft SWH Ecoregion 7E Criterion Schedule (OMNR 2012). Results of the 2013 field work and flora and fauna data provided by the TRCA were used as inputs to the SWH criteria. The following constitute SWH identified in the City of Vaughan according to the methods described above:

- Amphibian breeding habitat - woodland;
- Amphibian breeding habitat - wetlands;
- Open country breeding bird habitat;
- Open country breeding bird habitat – Special Concern species;
- Open country breeding bird habitat – Threatened grassland species (candidate SWH);
- Shrub/early successional breeding bird habitat;
- Shrub/early successional breeding bird habitat and Threatened grassland species; and
- Woodland area-sensitive breeding bird habitat.

It is important to note that the field investigations and data analysis had a focus on amphibian and breeding bird species. An MESP or EIS in support of a development application may identify other site-specific examples of significant wildlife habitat described in the MNR criterion schedules.

b) NHN Criteria and Refinement

i. NHN Scenarios and Ecosystem Targets

Section 9 of the consulting team report (Attachment 1) provides an assessment of baseline conditions of the NHN in relation to ecosystem targets derived from the Environment Canada report, “How Much Habitat is Enough?” Several approaches to scenario testing are described in the consulting team report. The testing was not specifically calculated to determine the potential incremental improvement of the NHN towards the ecosystem targets for each possible scenario.

With a comprehensive GIS database in place as a deliverable of the NHN Study, the City can work with agency partners, such as the TRCA, to identify restoration areas and calculate the potential habitat improvements to the NHN. This will assist in setting priorities for land stewardship and/or securement efforts and provide an understanding of the budget requirements and likelihood of securing external funding for such stewardship and/or securement efforts.

ii. Core Features

Criteria are provided in the consultants’ final report (Attachment 1) for the refinement of Core Features. The limits of all Core Features were reviewed based on the available digital data and results of field investigations, resulting in many corrections to align Core Feature boundaries with development approvals. The inclusion of significant wildlife habitat based on results of the 2013 field investigations and exclusion of woodlands less than 0.5 hectares mark the major changes to the Core Features. The changes do not require amendment to the policies of Chapter 3 (Environment) of the VOP 2010.

Inclusion of all watercourses and waterbodies as Core Features is a modification to Schedule 2. Reaches of watercourses were not included in the Core Features in the situation described above where: (a) information provided by landowners was completed according to the HDF guideline (TRCA 2013); and (b) the assessments of the landowner

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 17

and the City's consulting team were in agreement and resulted in a management recommendation that the drainage feature be categorized for "mitigation". As a result, amendments are recommended to the policies in Chapter 3 in three specific areas to ensure that there is the flexibility to assess surface water features, particularly watercourses and waterbodies, to properly determine their significance through appropriate studies at the time of the development approval process. The addition of four new definitions is also recommended: "Sensitive Surface Water Features"; "Waterbody"; "Watercourse"; and "Headwater Drainage Feature". The recommended amendments to the VOP 2010 are described below in the subsection of this report titled, "Implementing the Findings of the NHN Study".

City staff also reviewed the Core Features delineation in comparison to the following City information:

- Official Plan Amendments at secondary plan scales (e.g. OPA 600, OPA 601, OPA 604, OPA 610);
- Approved Block Plans and Plans of Subdivision outside of Block Plan applications;
- Current zoning map;
- City of Vaughan 'Parks, Open Spaces, Woodlots, Stormponds and Facilities Map' (March 2014) (for internal use only); and
- Review of all VOP 2010 modifications presented to Council in staff reports of July 28, 2010, September 12, 2011 and April 3, 2012.

iii. Enhancement Areas

Criteria for Enhancement Areas are described for three categories of potential enhancement to the NHN: corridors or linkages; open country habitat; and interior woodland habitat.

Linkage Enhancement Areas: Options for viable north-south linkages, other than the main Humber River, East Humber River and Don River, are limited. As a result, it is proposed to delineate the viable north-south linkages on the revised Schedule 2 as Enhancement Areas located along the Robinson Creek corridor and the upper Purpleville Creek corridor. No east-west linkages have been identified in the NHN Study.

Open Country Enhancement Areas: Open country breeding bird habitat has been identified as significant wildlife habitat in the City of Vaughan in several locations. Grassland species have also been observed and/or recorded in shrub/early successional habitat, including lands already in public ownership. In order to improve the likelihood of persistence of open country breeding birds in the City as development proceeds, two specific areas are identified as Enhancement Areas. One area includes the former Keele Valley landfill and City of Vaughan landfill site, which are being used by grasslands species, but not at a threshold of species diversity and/or abundance to categorize the areas as significant wildlife habitat. As these sites are not able to be used for urban development in the immediate planning horizon, they represent an interesting opportunity to manage the sites to improve grassland habitat in the City of Vaughan.

Interior Woodland Habitat Enhancement Areas: Enhancement Areas to improve forest interior conditions are not specifically delineated on the revised Schedule 2. There are a variety of configurations that can enhance woodland interior habitat and a range of approaches that can be employed to engage landowners. As a result,

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 18

criteria for enhancement of woodland interior is described in the consulting team report, but not mapped given the variety of possible options. Although only 0.5% of Vaughan's land base can be considered to provide interior woodland conditions, there are several critical areas for area-sensitive woodland breeding birds identified as significant wildlife habitat. This provides a focus for efforts to improve the likelihood of species persistence related to woodland interior habitat.

c) Conservation Land Securement Strategy

The public consultation venues provided the opportunity to introduce a range of land securement options. The Conservation Land Securement Strategy provides a framework document that the City can use to consider the feasibility of land securement options together with ecological criteria when evaluating enhancement and restoration priorities. It identifies professional standards of practice that the City can follow in partnering with landowners and agencies in conservation land securement as a complement to securing lands into public ownership through the development application and review process.

6. Implementing the NHN Study Findings

a) Study Process

A Technical Report will be provided to a future Committee of the Whole meeting summarizing the evaluation of feedback received during the public comment period and any recommended changes to the:

- consulting team report on the NHN Study findings and recommendations;
- consulting team report on the Conservation Land Securement Strategy;
- Environmental Management Guideline; and
- Policies and schedules of the VOP 2010.

b) Recommended Policy and Schedule Amendments to VOP 2010

The consulting team report, marking the completion of Phases 2 to 4 of the NHN Study, includes a policy evaluation of each criterion used to identify elements of the NHN (see Section 7 of Attachment 1). Existing policies in Chapter 3 (Environment) of the VOP 2010 regarding many natural features, such as woodlands, wetlands, valleylands and significant wildlife habitat, are not recommended to be amended. Existing policies clearly articulate the intent to protect such features while allowing for some flexibility in their final delineation, subject to appropriate studies, should the lands be part of a development application. Since the NHN Study recommends a more precautionary approach to the delineation of watercourses and waterbodies, it is recommended that policies be added to allow for the assessment of the significance of such features based on appropriate studies.

i. Recommended Amendments to VOP 2010

The following amendments to the policies of the VOP 2010 are recommended.

- Add the following text regarding watercourses as policy 3.3.1.5 in Section 3.3.1 of the VOP 2010:

That *watercourses* may need to be confirmed by the City and the Toronto and Region Conservation Authority through field investigation. *Headwater drainage features* (HDFs) shall be identified and managed in accordance with TRCA's "Evaluation, Classification and Management of Headwater Drainage Features Guideline", as may be updated.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 19

- Renumber policy 3.3.1.5 to 3.3.1.6 and renumber policy 3.3.1.6 to 3.3.1.7
- Add the following definitions to Section 10.2.2 (Definitions) of the VOP 2010:

Headwater Drainage Feature (HDF). An ill-defined, non-permanently flowing drainage feature that may not have a defined bed or banks; they are zero-order intermittent and ephemeral channels, swales and rivulets, but do not include rills or furrows (also see *watercourse*). HDFs that have been assessed through TRCA's Evaluation, Classification and Management of Headwater Drainage Features Guideline, as requiring protection, conservation or mitigation, are subject to TRCA's Regulation.

Watercourse. An identifiable depression in the ground in which a flow of water regularly or continuously occurs (*Conservation Authorities Act*) - also see *headwater drainage feature*.

- Amend VOP 2010 policy 3.2.3.4(h) to include the term 'sensitive surface water features' as follows, which is consistent with the York Region Official Plan (ROP 2010) policy 2.2.1(m):

Sensitive surface water features (including waterbodies), seepage areas and springs not already captured in *valley and stream corridors*, and a 30 metre minimum vegetation protection zone for those seepage areas and springs in the **Oak Ridges Moraine Conservation** and **Greenbelt Plan Areas**.

- Amend policy 3.3.5.1 by adding a subparagraph as follows, which is consistent with ROP 2010 policy 2.2.4:

Prohibiting development and site alteration within *sensitive surface water features* and their vegetation protection zone unless it is demonstrated through an environmental impact study that the development or site alteration will not result in a negative impact to the ecological and/or hydrological functions of the *sensitive surface water feature*.

- Add the following definitions from the ROP 2010 to Section 10.2.2 (Definitions) of the VOP 2010:

Sensitive Surface Water Features. Water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.

Waterbody. Lakes, woodland ponds, etc. which provide ecological functions.

ii. Recommended Amendments to Schedules

Comments from York Region and the Province as part of the Official Plan Review process leading to the VOP 2010 identified the need to include schedules of natural features in addition to the composite 'system' (the NHN) delineated on Schedule 2. It is recommended that three schedules be added to delineate specific features, as shown in Section 8 of Attachment 1:

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 20

- Hydrologic Features and Valleylands as Schedule 2A to delineate aquatic habitat;
- Woodlands as Schedule 2B to delineate terrestrial habitat; and
- Significant Wildlife Habitat as Schedule 2C.

Schedules in the VOP 2010 already delineate other specific components related to natural heritage, which are related to designations rather than features, and include: Schedule 3 – Environmentally Sensitive Areas (ESAs) and Areas of Natural and Scientific Interest (ANSIs); Schedule 4 – Oak Ridges Moraine Conservation Plan (ORMCP) and Greenbelt Plan Areas; Schedule 6 – Aquifer Vulnerability (addressed in the ORMCP policies); and Schedule 7 – Landform Conservation (addressed in the ORMCP policies). Hence, the recommended Schedules 2A to 2C are more feature-based and meet the intent of the comments from the Region and the Province to complement the NHN with feature-based mapping.

The Provincial Policy Statement identifies habitat of Endangered and Threatened species and Fish Habitat as natural features. Protection of species at risk as required by the Federal Species at Risk Act (2002) and Provincial Endangered Species Act (2007), including the protection of habitat for Endangered and Threatened species and Fish Habitat, is addressed through the policies of the VOP 2010 in accordance with appropriate federal and/or provincial legislation. As a result, NHN criteria are not established specifically to map the habitat of Endangered and Threatened species and Fish Habitat, although such habitat is often included in the natural features depicted on the proposed Schedules 2A to 2C.

c) Work Plan for the Long-Term Maintenance, Restoration and Improvement of the NHN

Improving the NHN over time requires three general areas of effort: securing land; maintaining or improving habitat conditions through stewardship approaches; and identifying opportunities to align other City efforts with the maintenance and improvement of the Natural Heritage Network, such as those related to parks planning and infrastructure (i.e. more sympathetic infrastructure such as green infrastructure design for stormwater and minimizing impacts of hard infrastructure such as roads).

i. Land Securement

The development review process provides a proven mechanism for determining whether lands should be brought into public ownership to protect the Natural Heritage Network. The results of the NHN Study will improve the City's ability to process development applications once the following tools are finalized:

- A GIS database of features and attribute information related to the NHN;
- Revised Environmental Management Guideline to set the Terms of Reference for an MESP and/or EIS; and
- Approved amendments to the policies and schedules of the VOP 2010.

In addition, City staff recommend that a habitat compensation protocol be investigated. Policies in the VOP 2010, such as policy 3.2.3.11 requiring that modifications to Core Features provide documentation to "include measures to maintain overall habitat area and enhance ecosystem function", are intended to allow flexibility in NHN delineation while providing for overall improvement of the NHN. A habitat compensation protocol will provide more specific guidance to determine whether such compensation is appropriate and how to ensure an overall NHN improvement.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 21

The Conservation Land Securement Strategy (Attachment 2) identifies professional standards of practice that the City can follow in partnering with landowners and agencies in conservation land securement as a complement to bringing lands into public ownership as a condition of development approval, as it is practiced for hazard lands, valley and stream corridors, ESAs and ANSIs. It is recommended that City staff investigate conservation land securement opportunities as a way to identify a Terms of Reference, budget, external funding sources, partnership opportunities, and staffing implications in a future report to Council. Outreach to landowners is a short-term step that the City can undertake as a way to determine the role the City can provide in conservation land securement.

ii. Land Stewardship

The City already engages in stewardship actions through the work of departments such as Parks and Forestry Operations. The TRCA is the City's main partner in stewardship as it has staff and budget dedicated to actions such as habitat restoration, invasive species management, and assisting with the Ontario Managed Forest Tax Incentive Program. The investigation of actions to implement Conservation Land Securement should also consider priority actions, such as restoration opportunities, to complement existing partner programs.

iii. Integrating Natural Heritage, Open Space and Green Infrastructure

It was necessary for the NHN Study to focus on refinements to the NHN mapping in relation to ecosystem targets. However, natural heritage protection also provides community amenity areas (trails, vistas, etc.) and ecosystem services (managing stormwater, cleaning air, storing carbon, etc.). City staff should continue to collaborate to identify specific actions that have benefits across multiple departments, such as alternative engineering design standards for green infrastructure (i.e. low impact development measures) and implementing the Sustainability Performance Metrics to reduce ecological footprints of development applications.

Relationship to Vaughan Vision 2020/Strategic Plan

The Natural Heritage in the City report is consistent with the Vaughan Vision 2020 Strategic Plan, through the following initiatives, specifically:

Service Excellence:

- Lead & Promote Environmental Sustainability

Management Excellence:

- Manage Growth & Economic Well Being
- Demonstrate Leadership & Promote Effective Governance

This report is consistent with the priorities previously set by Council.

Regional Implications

Policies in the ROP 2010 support the effort of local municipalities to identify local greenlands systems. York Region staff have been consulted during the study process. Ultimately, York Region will be the approval authority for any amendments to the VOP 2010, adopted as a result of this study.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 24, 2014

Item 6, CW(PH) Report No. 32 – Page 22

Conclusion

The consulting team has delivered the Natural Heritage Network Study report. This Report to the Committee of the Whole and Council summarizes the findings of the Study for the purposes of obtaining public comment prior to its finalization with particular emphasis on:

- Criteria for refinement of the Core Features and Enhancement Areas of the NHN; and
- Recommended modifications to select policies of Chapter 3 (Environment) and Schedules of the VOP 2010.

Therefore, it is recommended that this report be received and that any issues raised at the Public Hearing, or raised in subsequent correspondence, be addressed by the Vaughan Planning Department's Policy Planning Division in a future Technical Report to the Committee of the Whole.

Attachments

1. Phase 2-4 Natural Heritage Network Study, City of Vaughan. Prepared by North-South Environmental Inc.
2. City of Vaughan Conservation Land Securement Strategy. Produced by Orland Conservation.
3. Public Consultation Feedback and City Response.

Report prepared by:

Tony Iacobelli, Senior Environmental Planner, ext. 8630

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)



**WESTON
CONSULTING**

planning + urban design

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City of Vaughan
Level 200
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

C	4
Item #	6
Report No.	32 (PH)
Council - June 24/14	

June 17, 2014
File 6381

Attn: Tony Iacobelli, Senior Environmental Planner

Dear Sir,

**RE: City of Vaughan Natural Heritage Network Study
4650 Highway No. 7
City of Vaughan**

Weston Consulting is the authorized planning consultant for Pebble Creek Development Inc., the registered owner of the property located at 4650 Highway No. 7 in the City of Vaughan. The property is located on the west side of Pine Valley Drive, north of Highway 7 and is approximately 3.1 hectares in area.

The owner is proposing a redevelopment of the subject property for a low rise residential development and applications will be submitted to the City in the near future. These applications include official plan amendment, zoning by-law amendment and draft plan of subdivision applications and will be supported by various technical studies including an Environmental Impact Study (EIS), which has been prepared by Dillon Consulting Limited.

Portions of the subject property are designated "Natural Areas" according to the City of Vaughan Official Plan and we note that certain policies in the Official Plan permit modifications to the boundaries of the designation based on the completion of appropriate technical studies. Given that a detailed EIS has been prepared for the property that delineates natural heritage features, we request that the City's Natural Heritage Network (NHN) Study and corresponding mapping be modified to reflect the information contained in the EIS, which will be subject to a forthcoming planning application process.

In our opinion, it would be appropriate to have the City's NHN reflect the more detailed analysis of natural heritage features that included field work, inventories and the staking of development limits and natural features with the Toronto and Region Conservation Authority.

Given the imminent submission of the EIS to the Development Planning Department, we have not attached the report to this correspondence.

Please consider this our formal request to be notified concerning any further meetings or decisions concerning this study and the related official plan amendment. We reserve the right to provide

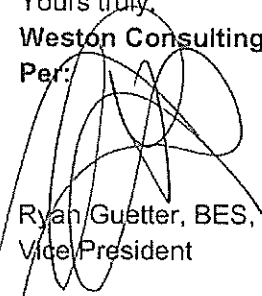
further comments in relation to the study and the corresponding official plan amendment, as may be required, and we would be pleased to meet with you to discuss the EIS or our comments herein at the appropriate time.

Please contact Jack Wong (ext. 244) or the undersigned if you have any questions. In addition to the undersigned, please notify Gabriel DiMartino at gdimartino@graywoodgroup.com.

Yours truly,

Weston Consulting

Per:



Ryan Guetter, BES, MCIP, RPP
Vice President

- c. G. DiMartino, Graywood Developments Ltd.
- A. Benson, Dillon Consulting Limited
- City Clerk, City of Vaughan

HUMPHRIES PLANNING GROUP INC.

June 16, 2014
HPGI File: 09211

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L4A 1T1

C	<u>5</u>
Item #	<u>6</u>
Report No.	<u>32 (PH)</u>
<u>Council - June 24/14</u>	

Attn: Jeffrey Abrams, City Clerk

Re: Committee of the Whole Public Hearing
Item 6 : Natural Heritage Study Phase 2-4
City File: 25.5.4

On behalf of 139253 Ontario Ltd. with respect to lands municipally addressed as 10951 Kipling Avenue we are writing to express concern respecting the study and draft mapping provided to date as it relates to the above noted subject site. Official Plan and Zoning Applications (OP.09.003 and Z.09.026) were filed for the subject property and appropriate study work conducted to determine development limits and setbacks etc undertaken as part of that application process. In respect of such we are of the opinion that the study work undertaken and approved by the TRCA and review agencies should take precedence over the NHN study work and request written confirmation of such by the City in this regard.

Further to the above, we are requesting formal Notice of any amendments to the Vaughan Official Plan pursuant to subsection 17(23) of the Planning Act resulting from this study.

Should you have any questions, please contact the undersigned at ext. 246.

Yours truly,
HUMPHRIES PLANNING GROUP INC.


Rosemarie Humphries, MCIP, RPP
President

cc: Tony Iacobelli, Environmental Planner
John Mackenzie, Commissioner of Planning
1539253 Ontario Ltd.

216 Chrislea Road
Suite 103
Vaughan, ON
L4L 8S5

T: 905-264-7678
F: 905-264-8073

www.humphriesplanning.com
~ Do Something Good Everyday! ~

Subject: FW: Notice - Committee of the Whole (Public Hearing) - June 17, 2014 - !

From: Mark van Stempvoort [mailto:markvanstemp@yahoo.ca]

Sent: Tuesday, June 17, 2014 6:22 PM

To: Policyplanning; Iacobelli, Tony; Iafrate, Marilyn; Di Biase, Michael; Schulte, Deb

Cc: David Brand

Subject: Re: Notice - Committee of the Whole (Public Hearing) - June 17, 2014 - Natural Heritage Network (VOP 2010)

C	9
Item #	6
Report No.	32 (PH)
Council	June 24/14

To Council Members,

As a Kleinburg resident, I have been following the progress of the Natural Heritage Network Study with strong interest. Last autumn I participated in the Community Forum at Vaughan City Hall, and more recently I attended the Open House and information session also at City Hall this spring.

I am concerned about the scarcity of remaining natural features such as valleylands, wetlands and woodlands in my local municipality, and I very much wish that as a community we would protect, conserve and restore what remains of this heritage for now and for future generations.

As an avid hiker and outdoorsperson, these natural heritage features provide much enjoyment for my recreational activities. Beyond the aesthetic and recreational values they provide for me personally, these natural features are essential for maintaining a healthy environment for our community. Without a healthy natural environment, we will not be able to sustain a healthy social environment.

I recognize that there must be some ongoing economic development of our land and resources to provide for our livelihood and prosperity, but at this point in Vaughan's history I believe that we must take steps to ensure that the small proportion of our land base still remaining in a natural state and the basic natural services it provides (clean air, protection from floods, heat reduction, and so on) are protected forever.

While regretfully I will not be attending the Public Hearing scheduled for this evening, I wish to urge Vaughan Council Members to adopt the Natural Heritage Network Study on behalf of myself and all other citizens so that we can move forward to protect what remains of our irreplaceable Natural Heritage.

Sincerely, Mark van Stempvoort
905-893-2366

Date: Mon, 26 May 2014 16:41:26 -0400

From: policyplanning@vaughan.ca

Subject: Notice - Committee of the Whole (Public Hearing) - June 17, 2014 - Natural Heritage Network (VOP 2010)

CC:

NOTICE OF A PUBLIC MEETING

A public meeting to receive comment on the Natural Heritage Network Study and on the resulting amendments proposed to the policies of Chapter 3 (Environment) and Schedule 2 (Natural Heritage Network) of the Vaughan Official Plan 2010 will be held on:

COMMITTEE OF THE WHOLE (PUBLIC HEARING)

June 17, 2014 at 7:00 pm

at

**VAUGHAN CITY HALL, COUNCIL CHAMBER
2141 MAJOR MACKENZIE DRIVE, VAUGHAN, ONTARIO, L6A 1S1**

PROPERTY:

The Natural Heritage Network was conducted on a City-wide basis.

STUDY:

The City of Vaughan Official Plan (VOP 2010), adopted by Council in September 2010, designates a Natural Heritage Network (NHN) which is composed of Core Features, Enhancement Areas, Built-Up Valley Lands, and lands in the Greenbelt Plan and Oak Ridges Moraine Conservation Plan. Core Features include significant natural features such as valleylands, wetlands and woodlands. Enhancement Areas of the NHN are described in policy and identify possible restoration areas for potential inclusion as Core Features based on appropriate detailed studies. The Natural Heritage Network Study is aimed at protecting and conserving such resources in the City and providing for any necessary changes to the VOP 2010.

The purpose of this Public Hearing meeting is to receive comment on the findings of the NHN Study, including:

- Criteria defining Core Features and Enhancement Areas of the NHN; and
- Recommended amendments to select policies of Chapter 3 (Environment) and Schedule 2 of the VOP 2010.

PROPONENT:

The City-wide Natural Heritage Network Study and the proposed amendments to the Vaughan Official Plan 2010 are initiatives of the City of Vaughan.

FILE NUMBER(S): 25.5.4

CONTACT:

Additional information may be obtained from Tony Iacobelli of the Planning Department at 905-832-8585, Extension 8630. Comments may also be mailed to the Planning Department at the address above, or faxed to (905) 832-8545, or e-mailed to tony.iacobelli@vaughan.ca prior to the meeting (please quote file name and number). Comments provided at the Public Hearing or in writing thereafter, will be considered prior to the Natural Heritage Network Study document being finalized and approved.

A copy of the staff report and attachments will be made available to the public through the Office of the City Clerk after 4:30 p.m. on June 12, 2014 at the following website: http://www.vaughan.ca/council/minutes_agendas/Pages/default.aspx. A copy of the draft Natural Heritage Network Study document will be available by May 29, 2014 at <http://www.vaughan.ca/NaturalHeritageNetwork>.

The Planning Act, R.S.O. 1990, c.P.13 authorizes the City of Vaughan to collect any personal information in your communication or presentation to City Council or its Committees. The City collects this information to enable it to make informed decisions on the relevant issue(s). If you are submitting letters, facsimiles, e-mails, presentations or other communications to the City, you should be aware that your name and the fact that you communicated with the City will become part of the public record and will appear on the City's website. The City will also make your communication and any personal information in it such as your address and postal code or e-mail address available to the public unless you expressly request the City to remove it. The City audio records Council and Committee meetings. If you make a presentation to a Council or Committee, the City will be audio recording you and City staff may make these recordings available to the public.

Please direct any questions about this collection to the Planner listed above.

JOHN MACKENZIE, Commissioner of Planning
JEFFREY A. ABRAMS, City Clerk

NOTE

Official Plan (O. Reg. 543/06)

If a person or public body does not make oral submissions at a public meeting or make written submissions to the City of Vaughan before the proposed Official Plan Amendment is adopted the person or public body is not entitled to appeal the decision of The City of Vaughan or The Regional Municipality of York, as the case may be, to the Ontario Municipal Board.

If a person or public body does not make oral submissions at a public meeting or make written submissions to the City of Vaughan before the proposed Official Plan Amendment is adopted, the person or public body may not be added as a party to the hearing of an appeal before the Ontario Municipal Board unless, in the opinion of the Board, there are reasonable grounds to add the person or public body as a party.

If you wish to be notified of the adoption of the proposed Official Plan Amendment, or of the refusal of a request to amend the official plan, you must make a written request to the City of Vaughan, City Clerk's Office, 2141 Major Mackenzie Drive, Vaughan, Ontario L6A 1T1.



**WESTON
CONSULTING**

planning + urban design

Planning Policy Department
City of Vaughan
Level 200
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

C	<u>6</u>
Item #	<u>6</u>
Report No.	<u>32 (PH)</u>
<u>Council - June 24/14</u>	

June 17, 2014
File 6715

Attn: Tony Iacobelli, Senior Environmental Planner

Dear Sir,

**RE: City of Vaughan Natural Heritage Network Study
7553 Islington Avenue & 150 Bruce Street
City of Vaughan**

Weston Consulting is the authorized planning consultant for 7553 Islington Holding Inc., the registered owner of the properties located at 7553 Islington Avenue and 150 Bruce Street in the City of Vaughan (herein described as the 'subject properties'). The subject properties are located on the east side of Islington Avenue, south of Highway 7 and are a combined area of approximately 4.39 acres.

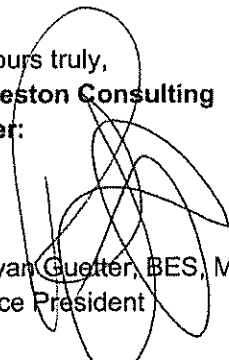
Our client has previously filed an appeal (formerly known as Briardown Estates Inc.) to the City of Vaughan Official Plan 2010, which designates the subject properties as "Natural Areas and Countryside" based on Schedule 1: Urban Structure; "Core Features" based on Schedule 2: Natural Heritage Network; and "Natural Areas" based on Schedule 13: Land Use.

The owner has commissioned an Environmental Impact Study for the subject properties. Detailed investigation and analyses have been completed for the subject property, which do not identify the constraints noted on Schedule 2, Schedule 2a and Schedule 2b of the NHNS. A summary of the specific comments and concerns are outlined in the attached letter prepared by WSP and we wish to advise that our client does not support the findings of the NHNS, as prepared.

We hereby request the opportunity to meet with Staff to review this information and reserve our right to make further comments. We further request to be notified of any further meetings, reports, modifications, and / or decisions in relation to the NHNS.

Please contact the undersigned or Courtney Heron-Monk (extension 401) if you have any questions.

Yours truly,
Weston Consulting
Per:



Ryan Guetter, BES, MCIP, RPP
Vice President

- c. Jeffrey A. Abrams, City Clerk
Raymond Nicolini, 7553 Islington Holding Inc.
Howard Wortzman, 7553 Islington Holding Inc.
Joseph Reichmann, 7553 Islington Holding Inc.
Patrick Harrington, Aird & Berlis LLP



June 17, 2014

Tony Iacobelli
Senior Environmental Planner
Policy Planning Department
City Hall, Level 200
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

**Subject: Review of the Natural
Heritage Network Study (NHNS) as it relates to
7553 Islington Ave., Community of Woodbridge,
City of Vaughan, Regional Municipality of York
Project No. 121-24682-01**

WSP Canada Inc. (WSP) (formerly GENIVAR Inc.) was retained to review the Natural Heritage Network Study (NHN) and supporting documents. Our review will focus on issues as they apply to the property known as 7553 Islington Avenue, inclusive of 150 Bruce Street, City of Vaughan, Ontario. The property can be described as Part of Lot 4, Concession 7, Township of Vaughan, Regional Municipality of York; herein referred to as the "Site".

Under the Woodbridge Community Plan (City of Vaughan Amendment No. 240, 2007), land use on the Site is designated as being within 'Open Space', and 'Low Density Residential'. Within the 2012 City of Vaughan Official Plan land use on the Site has been designated as being 'Natural Area' within Schedule 1, within 'Urban Area' in Schedule 1A, within a 'Core Features' area in Schedule 2, and is not within the Oak Ridge's Moraine or Greenbelt planning areas. Southwestern portions of the Site are within the TRCA regulated area, which are associated with the Humber River which lay beyond Islington Avenue to the southwest.

The NHN report suggests that the policy can stipulate that the habitat of Endangered and Threatened species may be incorporated into the NHN, where identified. WSP completed an Environmental Impact Study (EIS) on the Site to determine the presence of any Species at Risk (SAR). One (1) Species at Risk (Butternut) was identified as being present on and surrounding the site. Four (4) individuals were identified and assessed in the presence of Ministry of Natural Resources forestry staff, and it was determined that only one (1) individual was retainable. This individual was greater than 25 m from the proposed development, and will not be negatively impacted during any phase of the project.



The NHN report strengthens and defines forest cover goals for Vaughan as follows:

- At least 30% overall forest cover for Vaughan (currently 11%);
- At least 10% overall interior habitat for Vaughan (currently 0.5%); and,
- At least one large contiguous forest within each watershed for Vaughan (>200 ha).

The Site is separated from the Humber River by Islington Ave., which acts as a significant barrier to wildlife movement, making it unlikely to be widely used as a wildlife corridor surrounding the river. Thus, the Site should not be considered part of the larger Humber River watershed forest.

The NHNS report strengthens and defines goals for overall Riparian Habitat in Vaughan (75% cover goal, currently 30%). The Site is separated from the Humber River by Islington Ave. and a section of manicured lawn area. This severely limits any potential use as direct riparian habitat and the Site should not be considered as such.

The NHNS report notes that Significant Wildlife Habitat (SWH) will be given increased importance in planning activities. Additional guidelines to define Significant Wildlife Habitat are also provided. Species inventories were completed during the Environmental Impact Study, with emphasis on Species at Risk and any rare or significant wildlife habitat types. In general, The Site consisted of a large portion of non-native or invasive species, with significant edge effects occurring due to previous development within the area. Though one SAR species was noted; one (1) retainable Butternut noted above, the Site likely does not fit the criteria for Significant Wildlife Habitat.

Thank you for the opportunity to complete this assignment. Please contact the undersigned with any questions or comments.

Yours truly,
WSP Canada Inc.

A handwritten signature in black ink, appearing to read "Dan J. Reeves".

Dan J. Reeves, B.Sc., M.Sc.
Project Biologist

DJR:nah

WSP Canada Inc.
126 Don Hillock Drive, Unit 2
Aurora, Ontario
L4G 4G9
www.wspgroup.com

Subject: FW: Positive Suggestion regarding Block 59 Development
Importance: High

C	13
Item #	5
Report No.	32 (PH)
Council - June 24 / 14	

From: mary bowers [<mailto:sharkqueen9@hotmail.com>]

Sent: Sunday, June 22, 2014 3:01 PM

To: Rossi, Melissa

Cc: Bevilacqua, Maurizio; Rosati, Gino; Di Biase, Michael; Schulte, Deb; Jafrate, Marilyn; Carella, Tony; DeFrancesca, Rosanna; Racco, Sandra; Shefman, Alan

Subject: Positive Suggestion regarding Block 59 Development

Importance: High

Dear honoured civic dignitaries,

Sometimes small miracles happen. It has appeared to occur in our case, which allows all concerned parties to negotiate a really satisfactory conclusion, without necessitating going to the OMB.

As you are aware, the main sticking point is to keep additional traffic off of Hwy. 27. The miracle is that it now can be done.

A track of land is now for sale. It would enable a South/North road to be built parallel to HWY 27 to connect the proposed FedEx directly to Rutherford.

From all aspects, it appears to be the ideal solution. It negates any reason to open up Hwy 27 to a West/East connection.

This would satisfy congestion issues, etc.

The proposed West/East continuation of an existing road, which would carry through to HWY. 27, by comparison, is not logically or fiscally a satisfactory solution.

To continue the West/East road to meet with Hwy 27 would be fiscally prohibitive, which is probably one of the reasons the connection was not originally made. It would require FOUR BRIDGES to be built. Think of the cost! There are two waterways that need to be circumvented, necessitating two expensive overpasses, plus another massive overpass is needed over 427, and yet another overpass would need to be built over a transit corridor. Four overpasses and the road itself, which would hit Hwy 27, hit major tax dollars, maximize disruption in community residence and seriously dip into profitability for FedEx [unnecessary road time is money]

To allow a connecting South/North road to be built to meet with Rutherford, would be a fiscally responsible alternative. It would be about a third in length, compared to the West/East proposed road, No expensive overpasses would be required. It would be a relatively simple and faster solution.

Thus, it appears that a viable solution has presented itself. FedEx could buy the land, The 4Million price tag appears to be fair market value. [by example, Costco bought land at about 7Million to potentially build a road in that area] The connection could be built and thus Hwy 27 traffic would potentially be unaffected.

Now is the time to negotiate. Both FedEx and West Woodbridge Homeowners have indicated that they wish to negotiate. Please judiciously and fiscally approve rezoning and approve the building of the connecting road to Rutherford. No one wants the decision to be abdicated to the OMB.

Regarding the proposed park, my personal view, is why buy the land? The West Woodbridge Homeowners don't seem to be interested. Also, the park is proposed on land that can't be used commercially. Therefore, if you really want it used for a park, why not ask for it to be donated, or at the very least, just lease the land for a protracted period of time, a gesture of good will on FedEx's part, after all, you're negotiating, and that parcel of land is commercially unusable to them.

Regarding the noise abatement solutions; again, now's the time to negotiate, so see what costs the applicant will absorb. As it was pointed out by the Woodbridge Homeowners, It would be really beneficial, to community satisfaction, to have the East side noise abatement solution built on city land, rather than private land. Since this would require current restrictions to be modified, why not propose to look into taking up the issue and propose a change. It will take time, but so will building FedEx across the road. Or propose to FedEx to participate in the upkeep of the said noise abatement solution on the residential side, in accordance with their interest in working with our community.

Thank you very much for your time, and your careful consideration on this matter.

Yours Sincerely,

Mary Bowers
60 Royalpark Way,
Vaughan, On.

,
The small miracle is that the track of land that would enable a road to be built

PLEASE REFER TO:
Barry Horosko (Ext: 339)
Email: bhorosko@bratty.com
Caterina Facciolo (Ext: 293)
Email: cfacciolo@bratty.com
Telephone: (905)760-2700

June 23, 2014

Delivered via E-mail

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

C	<u>22</u>
Item #	<u>6</u>
Report No.	<u>32 (PH)</u>
Council	<u>June 24/14</u>

Attention: Mayor Maurizio Bevilacqua and Members Council

Dear Mayor and Members of Council

**Re: Committee of the Whole Public Hearing Report Item 6
Vaughan Natural Heritage Network
Inventory and Improvements Phases 2 to 4
Final Consulting Team Report and Recommendations
Amendments to City of Vaughan Official Plan 2010 ("VOP2010")
OMB Case No. PL111184
Novagal Development Inc. – Appellant No. 52**

We are the solicitors acting on behalf of Novagal Development Inc. ("Novagal") with respect to the above referenced matter.

Our client is an appellant to VOP2010. Novagal's appeal applies to lands owned by Novagal and lands for which Novagal acts as a manager for. Specifically, the Novagal appeal also relates to lands owned by the following landowners:

- Galnova Developments Inc.;
- Bragal Developments Inc.;
- Branova North Developments Inc.; and
- Branova South Developments Inc.

Please see attached hereto a map indicating the landownership of each of the land holdings for which the Novagal appeal applies.


Our client has been actively involved in the Natural Heritage Network Study and has been working with City staff with respect to same, and has made previous submissions. While our client continues to have concerns with respect to the Natural Heritage Network Study and the proposed modifications to VOP2010 being proposed in the Final Consulting Team Report and

Recommendations, our client is hopeful that its concerns can be resolved through further discussions with City staff.

Irrespective of our appeals to VOP2010, we formally request Notice of any further proposed amendments to the Official Plan which may result from the City's Natural Heritage Network Study.

Should you have any questions or concerns with respect to the foregoing, please do not hesitate to contact the undersigned.

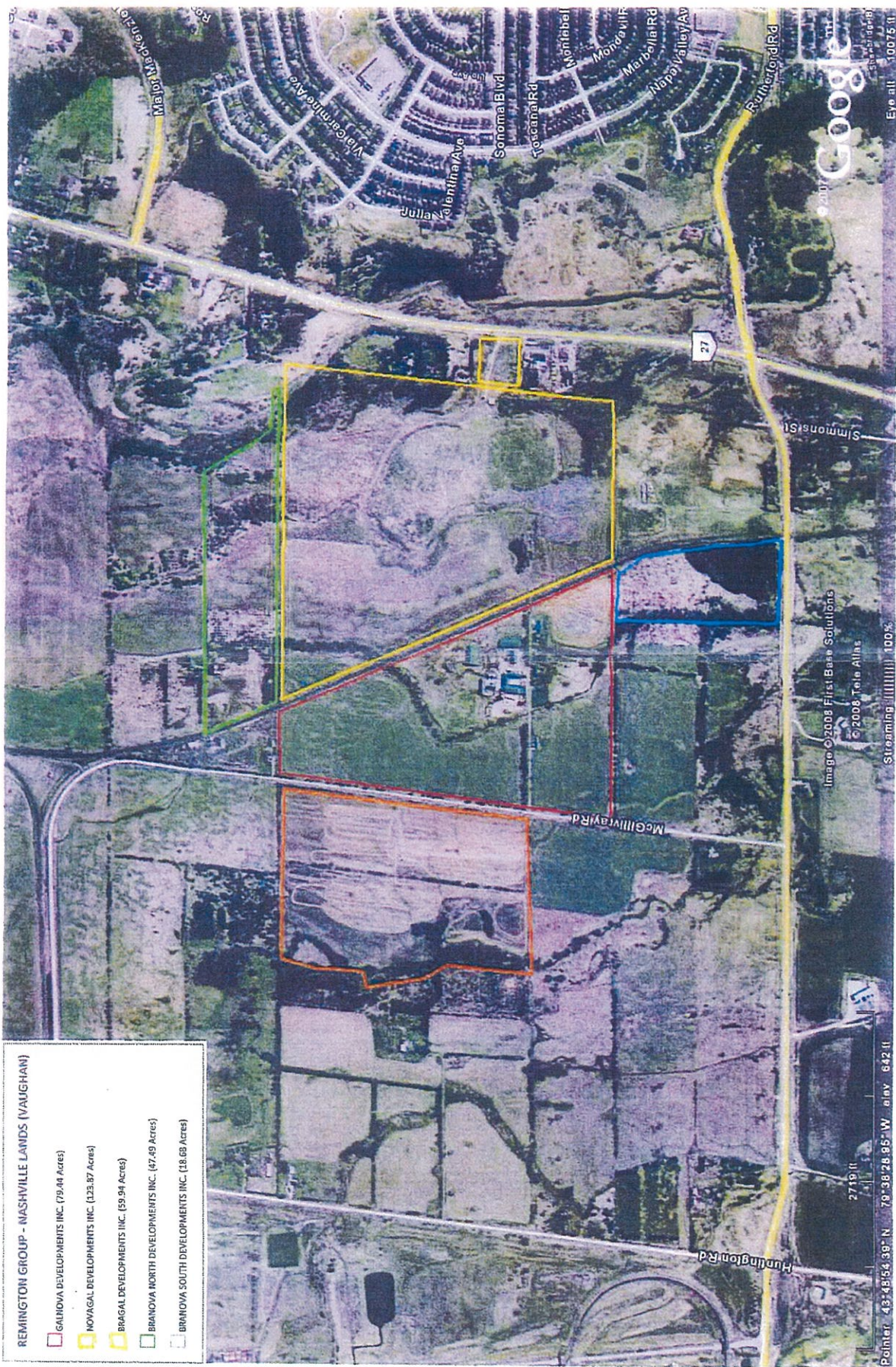
Yours truly,
BRATTYS LLP



Caterina Facciolo

encl:

cc: Jeffrey Abrams, City of Vaughan
Tony Iacobelli, City of Vaughan
John Mackenzie, City of Vaughan
Luch Ognibene, Novagal Development Inc.



REMINGTON GROUP - MASHVILLE LANDS (VAUGHAN)

- GALNOVA DEVELOPMENTS INC. (79.44 Acres)
- NOVAGAL DEVELOPMENTS INC. (123.87 Acres)
- BRAGAL DEVELOPMENTS INC. (59.94 Acres)
- BRANOVA NORTH DEVELOPMENTS INC. (47.49 Acres)
- BRANOVA SOUTH DEVELOPMENTS INC. (18.68 Acres)

Google

Image © 2008 First Base Solutions
© 2008 Tele Atlas
Streaming 100%

Eye alt: 10075 ft
2719 ft
Huntington Rd
McGilivray Rd
Simmons St
Rutherford Rd
Napoli Valley Av
Marbella Rd
Mondovill
Mondovill
Toscana Rd
Sonoma Blvd
Valencia Ave
Via Garibaldi
Julian
Malibu Tract 210

Pointer: 43°48'54.39" N 79°38'28.95" W elev: 642 ft



64 Jardin Drive, Unit 1B
Concord, Ontario
L4K 3P3
T. 905.669.4055
F. 905.669.0097
klmplanning.com

P-2318

June 24, 2014

Delivered via E-mail

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Attention: Mr. Jeffrey Abrams, City Clerk

Re: **City of Vaughan Planning Area Block 21
Committee of the Whole Public Hearing Item 6:
Natural Heritage Study Phase 2-4**

C28
Item 6
Rpt. 32
CL - June 24/14

Dear Mr. Abrams,

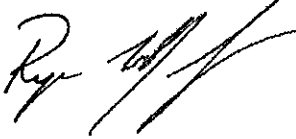
KLM Planning Partners Inc. represents Block 21 Developers Group Inc. within Block 21 of the City of Vaughan with respect to the provision of land use planning and project management services related to ongoing matters within the block. On behalf of these land owners, we wish to express our concerns respecting the ongoing Natural Heritage Network Study, associated draft mapping and any future proposal to amend the Official Plan. We feel that more detailed mapping should be made available so that we may conduct an informed analysis of any implications that may impact our client's lands.

We reserve the right to provide further comments and furthermore request to be notified of any further meetings, reports, studies, modifications, and decisions in relation to this Natural Heritage Study.

Should you have any questions or concerns with respect to the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

KLM PLANNING PARTNERS INC.

A handwritten signature in black ink, appearing to read 'Ryan Mino-Leahan', with a stylized flourish at the end.

Ryan Mino-Leahan, MCIP, RPP
Associate/Senior Planner

Cc: Block 21 Developers Group Inc. – Attention, Lou Pompili
Tony Iacobelli, Senior Environmental Planner



64 Jardin Drive, Unit 1B
Concord, Ontario
L4K 3P3
T. 905.669.4055
F. 905.669.0097
klmplanning.com

P-2184

June 24, 2014

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Attention: Mr. Jeffrey Abrams
City Clerk

Re: **Block 34 East Landowners Group**
Highway 400 North Employment Lands Secondary Plan (OPA No. 637)
Committee of the Whole Public Hearing Item 6:
Natural Heritage Study Phase 2-4
City of Vaughan

Dear Mr. Abrams,

On behalf of our clients, the Block 34 East Landowners Group, we wish to express our concerns with respect to the ongoing Natural Heritage Network Study, associated draft mapping and any related future amendments to the City of Vaughan Official Plan. We request that more detailed mapping with property limits be made available to the public and stakeholders so that we may conduct an informed analysis of any potential implications that may impact our client's lands as a result of the Natural Heritage Study.

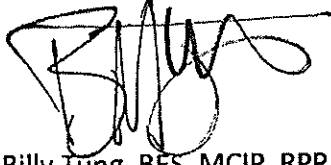
We also note that The Highway 400 North Employment Lands Secondary Plan (OPA No. 637) contains specific policies relating to the environmental planning framework. More specifically, Section 2.3.2.10 and Schedule 2D – Land Use Plan reflects the results of the environmental analysis carried out as part of the background study prepared as the basis for the Lands Use Plan and recognizes the general locations of potential environmental features.

Furthermore, we reserve to right to provide further comments and are requesting formal Notice of any amendments to the City of Vaughan Official Plan that would result from this study.

C30 - Item 6
Rpt. 32
CL - June 24/14

Yours truly,

KLM PLANNING PARTNERS INC.

A handwritten signature in black ink, appearing to read 'Billy Tung', written over a horizontal line.

Billy Tung, BES, MCIP, RPP
ASSOCIATE/SENIOR PLANNER

Cc: Block 34 East Landowners Group
Savanta Consulting



**WESTON
CONSULTING**
planning + urban design

C 4
COMMUNICATION
CW (PH) - <u>JUNE 17/14</u>
ITEM - _____

Mayor and Members of Council
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

June 12, 2014
File 5303-2

Dear Mayor and Members of Council,

**RE: Phase 2 – 4 Natural Heritage Network Study
Woodbridge Park Ltd. (Steeles Avenue West and Gihon Spring Drive)**

Weston Consulting has been retained by Woodbridge Park Ltd. to provide planning services in support of a proposed mixed use development at the north east corner of Steeles Avenue West and Gihon Spring Drive in the City of Vaughan (the 'subject property') consisting of low rise residential and commercial uses.

The subject property is approximately 5.99 hectares (14.8 acres) in area and has been extensively modified through past activity including periodic ploughing and a layer of fill averaging approximately 7 metres in depth based on the boreholes drilled to investigate the geotechnical properties of the site. It is currently vacant and gradually slopes downwards towards the north east corner of the site with a depression near the northern boundary of the property. We understand that the depression was built in association with the CN Rail line to the north has been designed to convey storm water flows from the subject lands, CN Rail lands, and the adjacent property.

Based on our review of the 'Phase 2 – 4 Natural Heritage Network Report' (NHN Report), dated May 2014, the City of Vaughan is proposing to designate the entire property as 'Core Features' under the Natural Heritage Network. This appears to be based on the following:

1. The potential location of a Surface Water Feature on or near the subject property as illustrated on the proposed Schedule 2A attached to the NHN Report in the vicinity of the depression noted above; and
2. The designation of 'SWH Shrub/Early Successional Breeding Birds' in accordance with Schedule 2C.

With regard to the Surface Water Feature, a site walk with the TRCA was completed on April 29, 2014, where it was agreed that there is no regulated feature on the site. The TRCA confirmed the depression is a ditch and not a watercourse. Subsequent to this site walk and in consultation with the TRCA and the City, a Scoped EIS was prepared by Beacon Environmental. This EIS is being submitted to the City of Vaughan under separate cover in support of the proposed development on the subject property.

With regard to the designation of 'SWH Shrub/Early Successional Breeding Birds,' we note that the Scoped EIS (Beacon, June 2014) states the following:

*"The Phase 2-4 Natural Heritage Network Study for the City of Vaughan (North-South Environmental, 2014) identifies the entire subject property as Candidate Significant Wildlife Habitat for Shrub/Early Successional Breeding Birds. Based on the existing conditions at the subject property at the time of the field visits, this site does not meet the criteria provided under the Significant Wildlife Habitat Technical Guide. There are no Cultural Thicket (CUT) or Cultural Savannah (CUS) communities identified on the subject property. A small portion of Cultural Woodland was identified at the site however it was less than 0.01 ha in size. Both Cultural Thicket and Cultural Woodland were identified within 120 m of the subject property. The Cultural Meadow (CUM) and Cultural Woodland communities present on the site are much smaller than 10 ha in size, 1.6 ha and less than 0.01 ha respectively. And only one common species, Willow Flycatcher (*Empidonax traillii*) was observed during the first round of Breeding Bird Surveys. Given the size of the area, habitat conditions present, absence of indicator species in any meaningful abundance, we do not believe that this area qualifies as Significant Wildlife Habitat."*

Therefore, with respect to the NHN Report, the more detailed information contained in the Scoped EIS as it relates to the subject property should be incorporated into the final report. Based on this new information, we request that the subject property be removed from the Natural Heritage Network in its entirety.

Please add me to your consultation list on this matter and provide me with any notice of decision related to this matter. I can be reached at extension 232 if you have any further questions.

Yours truly,

Weston Consulting

Per:



Tim Jessop, MES, MCIP, RPP
Senior Planner

- c. P. Smith, Woodbridge Park Ltd.
- C. Matson, Matson McConnell Ltd

LARKIN+ land use planners inc.
849 Gorham Street
Newmarket, Ontario
Canada L3Y 1L7

Phone: (905) 895-0554
Toll Free: (888) 854-0044
Fax: (905) 895-1817

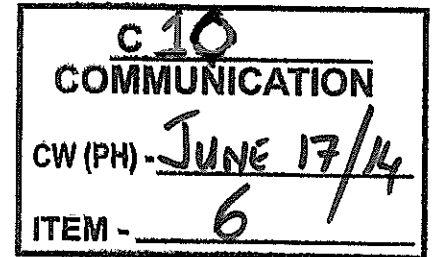


June 16, 2014

Mr. Jeffrey A. Abrams, City Clerk
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

VIA EMAIL: jeffrey.abrams@vaughan.ca

**Re: Natural Heritage Network Study Comments
Glenview Memorial Gardens
7541 Regional Road 50, City of Vaughan**



Dear Sir,

We represent Arbor Memorial Inc. ("AMI", formerly Memorial Gardens Canada Limited) regarding land use planning matters which may impact their cemetery properties. AMI owns and operates cemeteries across Canada and is actively involved in the development of new cemetery properties in different provinces. In the City of Vaughan AMI owns Glenview Memorial Gardens ("Glenview"), located at 7541 Regional Road 50. Glenview is a non-denominational cemetery, providing a full range of burial options that cater to a diverse customer base. Our client has recently become aware of the City's Natural Heritage Study and potential impacts to the continued development of Glenview.

Glenview was approved by the Ontario Municipal Board (OMB) in a decision issued on September 14th, 2000. The following year the City of Vaughan approved the Master Site Plan for the then proposed cemetery. Construction of the first burial gardens and portions of the internal road network commenced in 2002 following the design pattern of the approved Site Plan. Construction of burial gardens continues to this day as they become needed to serve the public. All burial gardens are registered with the Ministry of Consumer Services (MCS) in accordance with their licensing of the property as a cemetery.

Whereas we understand that the City has been undertaking the Natural Heritage Study (NHS) since 2012, on the strength of the Provincial approvals for the cemetery (the OMB and MCS), and the City's with the issuance of Site Plan Approval, our client has not generally concerned themselves with the study. In general, cemeteries are considered a compatible use with natural areas and wildlife. It appears, however, that portions of the Glenview cemetery are identified to be within the Natural Heritage Network as defined by the City wherein a corridor through the property is identified respectively as "Core Feature" (Schedule 2), and "Surface Water Feature - Stream" (Schedule 2A). With respect to the latter, it is noted on the Schedule that the "Surface Water Feature" is to be confirmed through the application of policies of the plan.

We note that Section 8.0 considers modifications to the Study's Schedules. Specifically it is stated that:

The VOP 2010 Schedule 2 Natural Heritage Network (Figure 5) will be updated to reflect current conditions in the City of Vaughan. This will include the removal of some areas of the NHN based on existing or approved development, as well as the addition of some areas based on the application of criteria described in Section 7. (p.39, North-South Environmental Inc., Phase 2-4 Natural Heritage Network Study City of Vaughan, May 2014)



In light of the ongoing development of Glenview based on the approvals previously mentioned it would be appropriate to remove reference to the identified features as they relate to the cemetery property as they no longer exist due to the aforesaid construction of the cemetery road network, construction of burial gardens, and proposed construction of additional gardens in accordance with the approvals already conferred for the property. The drainage patterns for the property have been altered in accordance to the approved plans to route surface water around the burial garden areas. Furthermore, it was previously understood that with the development of the lands immediately north of the cemetery in accordance with an approved industrial Secondary Plan, the overall drainage pattern for the area was to be modified.

I trust the information contained herein is of assistance to the City. Should there be any questions respecting this matter we would be pleased to make ourselves available to your staff and/or consultants. Thank you for the opportunity to present our thoughts on this matter.

Sincerely,

LARKIN+
A handwritten signature in black ink, appearing to read "M. Larkin", is written over the LARKIN+ logo.

Michael T. Larkin, M.Pl., MCIP, RPP
mtlarkin@larkinassociates.com

cc Mr. Tony Iacobelli, MCIP, RPP, City of Vaughan
Mr. Cosimo Casale, Cosmopolitan Associates Inc. (for AMI)



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c 11
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

June 16, 2014
File 6774

Mr. Tony Iacobelli
Senior Environmental Planner
City of Vaughan
2141 Major Mackenzie Drive,
Vaughan ON L6A 1T1

Dear Sir,

**RE: NATURAL HERITAGE NETWORK STUDY
AMENDMENTS TO THE VAUGHAN OFFICIAL PLAN 2010 ("VOP 2010")
MOHSEN CHARMCHY – 21 MILL STREET
FILE 25.5.4**

Further to our discussion this will confirm my request on behalf of Mr. Charmchy, the owner of the property at 21 Mill Street, that the VOP 2010 be amended to delete his entire property from the Natural Heritage Network on the grounds that:

- it is located outside the Don River valley feature; and
- the property comprises a new lot that was created by consent last year for the purpose of constructing a new detached dwelling.

The land use designation of the subject property in OPA 210 is "Low Density Residential". VOP 2010 redesignates the lands to "Natural Area". This redesignation was appealed by the former owner, Monica Murad, to the Ontario Municipal Board. The appeal has not yet been heard. Monica Murad continues to own the retained lot located immediately to the west at 15 Mill Street.

When the consent application was considered by the Committee of Adjustment, there were no objections expressed by the Toronto and Region Conservation Authority ("TRCA") because the lot is located above the top of bank of the Don River valley, which is located on the opposite side of Mill Street. The TRCA required the submission of a geotechnical report which established that the subject property was in a stable condition suitable for the construction of a detached dwelling. A copy of the TRCA letter dated May 9, 2013, is attached.

I would accordingly request that Schedule 13 ("Land Use") of VOP 2010 be amended to return the subject property at 21 Mill Street to an appropriate residential designation, i.e. Low-Rise Residential. I would also request that the property be removed from the "Core Feature"

designation shown on Schedule 2 ("Natural Heritage Network") and from any other schedule indicating inclusion of the property within the Natural Heritage Network.

Please notify me of the adoption of any official plan amendment that may arise from the study.


Thank you for your assistance.

Yours truly,
Weston Consulting
Per:



Alan Young, BES, MSc, MCIP, RPP
Senior Associate

- c. M. Charmchy
- M. Simaan, Kramer Simaan Dhillon LLP
- J. Barmi, Architect
- J. Abrams, City Clerk



TORONTO AND REGION
Conservation
for The Living City

May 9, 2013

CFN:

BY MAIL AND FAX (905) 832-8535

Mr. Todd Coles
Secretary Treasurer
Committee of Adjustment
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

Dear Mr. Coles:

Re: Committee of Adjustment Applications A121/13 and B006/13
15 Mill Street
Lots 6 & 7, Part of Lot 5, RP 328
City of Vaughan, York Region
(Monica Murad)

This letter will acknowledge receipt of the above noted variance and consent applications. Toronto and Region Conservation Authority (TRCA) staff have reviewed the application and offers the following comments.

Background

It is our understanding that the purpose of the above-noted applications are to permit the severance of the subject property to create a new lot for future residential development.

Applicable Policies and Regulations

The subject property is partially located within a Regulated Area of the Don River watershed. In accordance with Ontario Regulation 166/06 (*Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation*), a permit is required from the TRCA prior to any of the following works taking place:

- a) straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland;
- b) development, if in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.

Development is defined as:

- i) the construction, reconstruction, erection or placing of a building or structure of any kind,
- ii) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
- iii) site grading,
- iv) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

In addition, the TRCA's Valley and Stream Corridor Management Program (VSCMP) sets out development guidelines for properties influenced by valley and stream corridors. The overall objective of the VSCMP

F:\Home\Public\Development Services\York Region\Vaughan\A121-13 & B006-13 - 15 Mill St.wpd

Member of Conservation Ontario



- 2 -

May 9, 2013

policies is to prevent new development from occurring within areas that may introduce risk to life and property associated with flooding, erosion, and slope stability, or that is not compatible with the protection of these areas in their natural state. VSCMP policies define the valley and stream corridor boundary by the greater of the long-term-stable top-of-bank (where there is a well-defined feature) plus 10 metres inland, or the flood plain (where there is no valley feature) plus 10 metres inland. The corridor boundary is also extended to include any significant adjacent vegetation. Please note that the fragmentation of the ownership of valley and stream corridors is discouraged under the VSCMP.

Comments

The subject property is partially regulated under Ontario Regulation 166/06 as the East Don River valley corridor is located on the north side of Mill Street and the top-of-slope of the valley wall is located along the edge of the roadway (approximately 9 metres from the subject property).

Based upon a Geotechnical Letter of Opinion, prepared by Soil Engineers Ltd., dated April 19, 2013, received by the TRCA April 22, 2013, TRCA staff are satisfied that the proposed lot and eventual proposed dwelling are adequately setback from the long-term-stable top-of-slope (approximately 10 metres from a 3 horizontal : 1 vertical gradient line to the new lot).

Please note that a small portion of the proposed severed lot would remain within a TRCA regulated area due to the proximity of the valley corridor and long-term-stable top-of-slope. However, TRCA staff are satisfied that the proposal does not result in the fragmentation of ownership of the valley system.

Recommendations

In light of the above, TRCA staff have **no objections** to the above noted Committee of Adjustment applications, as submitted subject to the following conditions:

1. The applicant submit the variance application fee of \$1,200 payable to the Toronto and Region Conservation Authority.

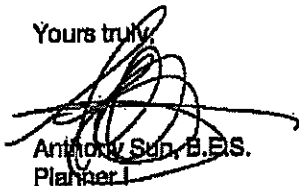
However, please be advised that all future development proposals should be circulated to the TRCA for our review and approval prior to any works taking place.

Fees

By copy of this letter, the applicant is advised that the TRCA has implemented a fee schedule for our planning application review services. This application is subject to a \$1,200 severance application review fee which has been included as a condition for our clearance of these applications. The applicant is responsible for fee payment and should forward the application fee to this office as soon as possible.

We trust these comments are of assistance. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,



Anthony Sud, B.E.S.
Planner I
Planning and Development
Extension 5724

SAAS

cc: Alan Young, Weston Consulting (fax: 905-738-6637)

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C 12
COMMUNICATION
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ITEM - 6

Development Planning Department
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

June 10, 2014
File 4750

Attn: Mr. Tony Iacobelli, Sr. Environmental Planner

Dear Sir,

**RE: Phase 2-4 Natural Heritage Network Study
9000 Bathurst Street
City of Vaughan**

Weston Consulting is the planner for the owners of 9000 Bathurst Street in the City of Vaughan. Official Plan Amendment (OP.13.013) and Zoning Bylaw Amendment (Z.13.036) applications have been submitted to the City of Vaughan and are currently under consideration by the municipality. The development applications anticipate the full build-out of the site excluding the natural valley lands, and associated buffer, at the north-east portion of the site.

We have reviewed the *Phase 2-4 Natural Heritage Network Study City of Vaughan*, dated May 2014, and the associated mapping. Schedule 2B-Woodlands incorrectly identifies a *woodland* area on the subject property outside of the valley lands (see attached). We request that this designation be removed from the NHN mapping as the area is not a *woodland* area.

Materials submitted with the development applications state that the incorrectly identified *woodland* area is actually a **plantation**. Attached please find a letter prepared by Ontario Tree Experts summarizing their evaluation of the area and their determination that the area is a *plantation*. The 2010 Official Plan definition of *Woodland* specifically excludes "a *plantation established for the purpose of producing Christmas trees or nursery stock.*"

Based on this evidence, we request that the incorrectly identified *woodland* area on the subject property be removed from all future mapping. If you have any questions, please contact the undersigned and we will be glad to assist. Thank you for the opportunity to provide our comments.

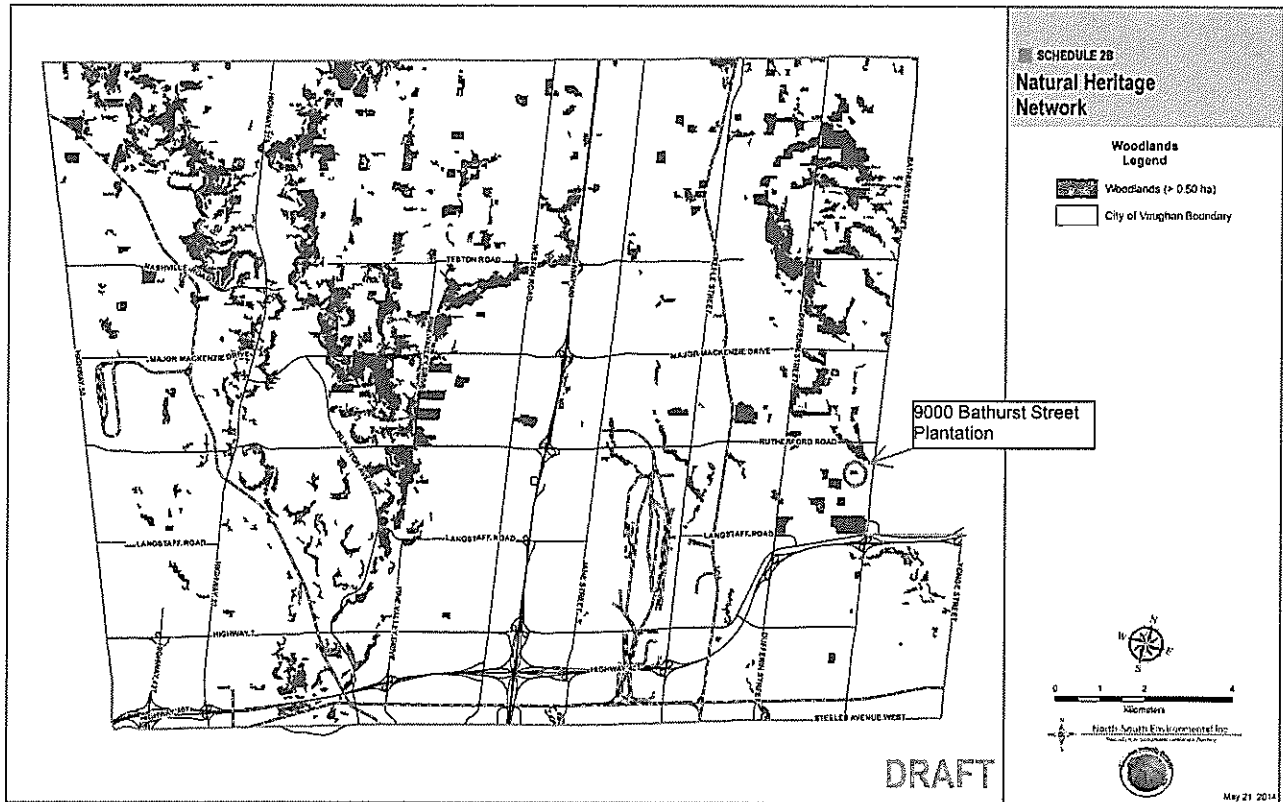
Yours truly,
Weston Consulting



Kurt Franklin MAES, MCIP, RPP
Vice President

Cc Shafiq Punjani, ISIJ
Jody Steiger, OnTree

Figure 7: Schedule 2b Woodlands





June 9, 2014

RE: Plantation at 9000 Bathurst Street

The purpose of this report is to outline general features of a treed area in order to identify it as a plantation. The treed area is located in the south west portion of the lot at 9000 Bathurst Street. A recent study prepared for the City of Vaughan by North-South Environmental Inc. ("Natural Heritage Network") has tentatively identified the area as a woodland.

The treed area was identified in the study as a woodland based solely on aerial photographs. While the area is treed, and does meet the study's size criteria of needing to be a minimum .50 hectares, a closer examination reveals that the area is man made, most likely originally as a tree farm.

The trees are planted on a ridge and furrow field, in straight rows with scattered groupings of different species. The east and larger portion consists of evergreen species, dominated by white spruce with scattered groupings of red and Scots pines. The smaller west portion consists of deciduous trees with rows of silver maple and Carolina poplar. Over the years, various other species have established on the perimeters, including aspen, buckthorn and green ash.

In size, the plantation is approximately 87 meters from south to north, and 133 meters from east to west. I have estimated that there are approximately 59 rows of planted trees. The evergreen trees are spaced approximately 1.5 meters apart, while the deciduous trees are spaced approximately two meters apart. The average DBH of the trees is 15 to 25 cm., indicating an age of less than 30 years.

It is apparent that the treed area at 9000 Bathurst Street did not arise naturally and is not part of the original woodland cover in the City of Vaughan. Species groupings and spacing suggest planting for the purpose of consumer production, possibly as a tree farm. Therefore, the area should be identified as a plantation and not as woodlands and should be removed from the mapping in Schedule 2B of the "Natural Heritage Network" study.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jody Steiger', written over a light blue grid background.

Jody Steiger
ISA Certified Arborist #ON-0338

HUMPHRIES PLANNING GROUP INC.

June 16, 2014
HPGI File: 09220/11263

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L4A 1T1

Attn: Jeffrey Abrams, City Clerk

Re: Committee of the Whole Public Hearing
Item 6 : Natural Heritage Study Phase 2-4
City File: 25.5.4

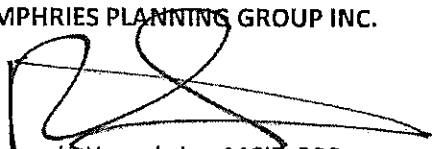
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COMMUNICATION	
CW (PH) -	JUNE 17/14
ITEM -	6

Humphries Planning Group Inc. is advising that we are reviewing the report documents with our consulting team on behalf of 281187 Ontario Ltd. and Anland Developments Inc and can advise that comments will be forthcoming relating to the Natural Heritage Network Study (NHN) Draft Phase 2-4 Report, dated May 2014.

Further to the above, we are requesting formal Notice of any amendments to the Vaughan Official Plan pursuant to subsection 17(23) of the Planning Act resulting from this study.

Should you have any questions, please contact the undersigned at ext. 246.

Yours truly,
HUMPHRIES PLANNING GROUP INC.



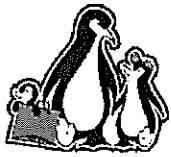
Rosemarie Humphries, MCP, RPP
President

cc: Tony Iacobelli, Environmental Planner
John Mackenzie, Commissioner of Planning
281187 Ontario Ltd.
Anland Developments Inc

216 Chrislea Road
Suite 103
Vaughan, ON
L4L 8S5

T: 905-264-7678
F: 905-264-8073

www.humphriesplanning.com
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CW (PH) - JUNE 17/14
ITEM - 6

June 17, 2014

Members of the Committee of the Whole
City of Vaughan
City Hall, Level 200
2141 Major Mackenzie Drive
Vaughan, ON
L6A 1T1

Dear Members;

**RE: MODIFICATION TO OFFICIAL PLAN MAPPING AND POLICIES
NATURAL HERITAGE NETWORK
CITY FILE #25.5.4**

SmartCentres owns considerable lands within the Vaughan Metropolitan Centre ("VMC"). We have reviewed the June staff report regarding the proposed policy and mapping revisions related to the Natural Heritage Network. As you are well aware, the VMC is to be a new mixed use, high density development area focused around the new VMC subway station.

The proposed Schedule 2 has identified a new Core Feature on the northwest corner of our lands. This Core Feature was never identified in the adopted version of Schedule 2. We have serious concerns with the inclusion of this new feature on our lands.

This new "Core Feature" is a man made drainage ditch associated with a temporary stormwater management pond and a man made pond (associated with a previous golf driving range on the property). These two ponds connect to the drainage ditch associated with Highway 400, which is located within the MTO Right-of-Way. These man made features are the extent of the Core Feature identified on the revised Schedule 2. Other than the conveyance of storm water out of these ponds, we don't believe there to be any environmental significance which would warrant a Core Feature designation of these ponds or the drainage ditch. We are undertaking an environmental assessment to present to the TRCA to confirm this.

I note that we have been working diligently with City staff through the Secondary Planning process for the VMC. While the northwest corner has been identified as future Environmental Open Space, this designation only relates to a future stormwater management facility. This facility is still in the early stages of planning and design. As such, the inclusion of the existing ponds and drainage ditch as a Core Feature is not warranted in our opinion. Until the detailed planning and design of the stormwater management facility and outlet is completed, it is premature and detrimental to the VMC Secondary Planning process for the City to implement a Core Feature designation on our lands.

We therefore respectfully request that the policies and schedules, as they affect our lands within the VMC, be deferred until the detailed planning and design of the stormwater management facility and outlet is completed.

We request we be notified of the decision on this matter by Committee of the Whole and Council.

Thank you.

A handwritten signature in black ink, appearing to read "Paula Bustard". The signature is fluid and cursive, with the first name "Paula" and last name "Bustard" clearly distinguishable.

Paula Bustard
Vice President, Development

AIRD & BERLIS LLP

Barristers and Solicitors

Christopher J. Williams
Direct: 416.865.7745
E-mail: cwilliams@airdberlis.com

June 17, 2014

Our File No. 111248

BY EMAIL

Mr. Tony Iacobelli
Senior Environmental Planner
Policy Planning Department
Vaughan City Hall, Level 200
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

C 17
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

Dear Mr. Iacobelli:

**Re: Natural Heritage Network Study
4603 and 4611 Highway 7**

We act on behalf of 2058258 Ontario Limited ("Forest Green Homes") with respect to the lands municipally known as 4603 and 4611 Highway 7 in the City of Vaughan (the "Site"). Please accept this letter and the attachments as our written submission for the purposes of subsection 17(24) of the *Planning Act*, R.S.O. 1990, c. P.13.

We have had the opportunity to review the June 17, 2014 staff report, entitled "Natural Heritage Network, Inventory and Improvements Phases 2 to 4, Final Consulting Team Report and Recommendations, Amendments to the Vaughan Official Plan 2010" including the related attachments. We understand that draft amendments to the Vaughan Official Plan 2010 are being considered by the Committee of the Whole on June 17, 2014 as recommended by City Staff in the noted staff report. We have commented on this matter previously.

Based on our review of the staff report and the related attachments, it appears that our client's concerns have not been satisfactorily addressed. We have enclosed our previous submission to City Staff, dated February 20, 2014, setting out our client's concerns respecting the Natural Heritage Network Study in connection with the Site. These concerns remain. In particular, we request that the Natural Heritage Network boundary be revised to be consistent with the Toronto and Region Conservation Authority staked top of bank and 10 metre setback. We are concerned with any amendments that may impose greater or new restrictions on lands adjacent to the Natural Heritage Network or change its boundaries.

We request formal Notice of any amendments to the Vaughan Official Plan 2010 pursuant to subsection 17(23) of the *Planning Act* resulting from this Study.

June 17, 2014
Page 2

Thank you very much.

Yours truly,

AIRD & BERLIS LLP



Christopher J. Williams

CJW/jc

cc. G. Bisnaire
A. Benson
R. Humphries

18448400.1

18448400.1

AIRD & BERLIS LLP

Barristers and Solicitors

Christopher J. Williams

Direct: 416.865.7745

E-mail: cwilliams@airdberlis.com

February 20, 2014

Our File No. 111248

BY COURIER

Mr. Tony Iacobelli
Senior Environmental Planner
Policy Planning Department
Vaughan City Hall, Level 200
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

Dear Mr. Iacobelli:

**Re: Natural Heritage Network Study
4603 and 4611 Highway 7**

We act on behalf of 2058258 Ontario Limited ("Forest Green Homes") with respect to the lands municipally known as 4603 and 4611 Highway 7 in the City of Vaughan (the "Site"). The Site is located on the south side of Highway 7, west of Pine Valley Drive. It comprises an area of 1.71 hectares and is currently vacant.

Further to our conference call of Tuesday, January 28, 2014, we are writing to provide you with comments on behalf of our client regarding the Natural Heritage Network Study (the "Study") and its potential impact(s) to the Site. To assist with your review, copies of all documents referenced in this letter are included on the enclosed DVD.

As you are aware, the eastern portion of the Site is designated Mid-Rise Residential and the western portion of the Site is designated Natural Areas by Schedule 13 of the City of Vaughan Official Plan 2010, currently under appeal to the Ontario Municipal Board ("VOP 2010"). The portion of the Site designated Natural Areas comprises part of the Natural Heritage Network and is identified as Core Features by Schedule 2 of the VOP 2010.

On March 29, 2012 Humphries Planning Group Inc., on behalf of Forest Green Homes, filed applications for Official Plan Amendment and Zoning By-law Amendment to permit the development of the Mid-Rise Residential designated portion of the Site. A Site Plan Approval application was filed on October 2, 2013. The portion of the Site designated Natural Areas is to remain vacant with the exception of a required stormwater headwall within the south side of the valley. With approval of the development proposal, the Natural Areas designated land is to be conveyed to the Toronto Region Conservation Authority ("TRCA").

Prior to filing the above-described development applications, our client, together with the TRCA determined an appropriate development limit that included a 10 metre buffer from the staked top of bank. The staked top of bank and 10 metre setback have been shown on all appropriate plans and drawings filed in support of the applications, including the enclosed Site Plan, prepared by Burka Architects Inc., dated September 30, 2013.

Through the processing of the applications, our client has also undertaken extensive environmental work including the preparation of the following reports:

- Environmental Impact Statement, prepared by Dillon Consulting, dated March 2013.
- A Feasibility Study for Municipal Servicing and Stormwater Management, prepared by Land-Pro Engineering Consultants Inc., dated March 14, 2012 and revised December 18, 2012.
- Environmental Assessment and Development Feasibility Analysis, prepared by Stantec Consulting Ltd., dated March 7, 2012.

The above-listed reports were circulated to the TRCA on November 18, 2013 with TRCA comments issued on January 23, 2014. The TRCA has not identified any significant or insurmountable concerns with the proposed development but has requested that additional information be provided prior to issuance of conditions of Site Plan Approval. Our client is actively working to satisfy these requirements.

We have reviewed the draft Study mapping, dated November 4, 2013 and are concerned as part of the developable portion of the Site has been included in the Study area. This land runs easterly from the Jersey Creek valley system but is beyond the top of bank staked with the TRCA on May 9, 2007 and associated 10 metre setback. Additionally, as set out in the enclosed letter from the TRCA, dated May 28, 2009, our client has agreed to provide monetary compensation to the TRCA for the assessed loss of this partial feature. Consequently, this land has been incorporated into the proposed development scheme as the location of a future stormwater management facility. We respectfully request that the NHN boundary be revised to be consistent with the TRCA staked top of bank and 10 metre setback. We trust that the information contained on the enclosed DVD provides sufficient evidence to support this refinement.

Finally, we understand that upon completion of the Study an amendment to the VOP 2010 may be made. We request notification of any proposed amendments to the VOP 2010 resulting from this Study. We are particularly interested in any amendments that may impose greater or new restrictions on lands adjacent to the NHN or change its boundaries.

We would be pleased to meet with you in future should the need arise. Please do not hesitate to contact the undersigned if you require any additional information. Thank you.



February 20, 2014
Page 3

Yours truly,

AIRD & BERLIS LLP



Christopher J. Williams

CJW/ee

cc. G. Bisnaire
A. Benson
R. Humphries

16653161.1





IBI GROUP
5th Floor--230 Richmond Street West
Toronto ON M5V 1V6 Canada
tel 416 596 1930 fax 416 596 0644
ibigroup.com

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CW (PH) -	JUNE 17/14
ITEM -	6

June 17, 2014

Vaughan City Council
City of Vaughan
2141 Major Mackenzie Drive W
Vaughan, ON
L6A 1S1

Vaughan City Council:

**FILE NUMBER: 25.5.4
NATURAL HERITAGE NETWORK SCHEDULE 2 & 2A COMMENTS AND
RECOMMENDATIONS**

On behalf of our clients, Bentall Kennedy who have lands within the VMC, we have provided the following comments related to the Natural Heritage Network Study Phases 2-4. Specifically, our clients are concerned with the updated *Schedule 2 Natural Heritage Network and Schedule 2a Hydrological Features and Valleylands* pertaining to the identification of *Core Features* and *Surface Water Features* along the Eastern edge of Highway 400 North of Highway 407 on the VMC lands.

It is noted that since the last study update, the west boundary of our client's lands have been identified "Core Features" and "Surface Water Features". Our client is concerned that no information related to these "new" features have been made available for review. Further, as part of the VMC Secondary Plan process and the 400/7 interchange realignment a number of studies have been undertaken related to this area. It will be necessary to review these studies with NHN Study to fully understand the nature of any feature in this location.

At this time, our client believes it is premature to identify the lands along the Western boundary of the lands as *Core Features* and *Surface Water Features* and believe it would be beneficial to arrange a meeting to discuss the results of the new studies in this area.

Yours truly,

IBI Group

Aidan Ferriss, LEED ap

cc: Tony Iacobelli, Senior Environmental Planner, City of Vaughan

cc: M. Reel, Bentall Kennedy

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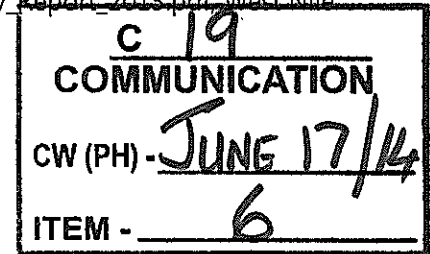
JUN 17 2014

CLERK'S DEPT.

Britto, John

C19.1

From: Cam Milani <cammilani@bellnet.ca>
Sent: Tuesday, June 17, 2014 12:29 PM
To: Bevilacqua, Maurizio; Rosati, Gino; Schulte, Deb; Di Biase, Michael; Shefman, Alan; DeFrancesca, Rosanna; Iafrate, Marilyn; Carella, Tony; Racco, Sandra
Cc: Clerks@vaughan.ca
Subject: Natural Heritage Network Study
Attachments: Tick Risk Map.pdf; Vector_Borne_Diseases_Summary_Report_2013.pdf; West Nile Monitoring Report TRCA 2013.pdf



Members of Council,

Please accept these as my comments on the Public Hearing item for today.

In an attempt to not sound repetitive to my comments made verbally during the open houses as well as all my discussions with staff over the last months, I am still very concerned over this document, not only from a site specific perspective, but from a city's health and safety perspective.

During the Open House last month, I posed the question to the external consultant, North South Environmental, about the recent concerns raised regarding the basis for a "Network" serving as a conduit or highway for the transfer of diseases into populated areas. The answer was "yes". Councillor Schulte at the meeting then attempted to comment on the consultants response, and if my memory serves me right, Councillor Schulte stated there is no proof yet for such disease transfer and therefore the network should proceed and the risks are acceptable. I am not sure who to believe, councillor Schulte or the consultant. I have also spoken to other environmental consultants in the industry, who confirmed the North South response of "yes". While a "network" of natural areas may sound good on paper to some, the potential risks of creating a highway for the transferring of diseases such as Dengue Fever, West Nile Virus and Lyme Disease into central Vaughan may not be such a great idea. I've attached a few reports and maps indicated the risks that could surface.

Further, swamps and wetlands as well as storm water management lands seem to serve as breeding grounds for the West Nile Virus. Why we would want such breeding grounds enhanced and connected into our population areas is beyond me. They should be removed if this is what they are. The health and safety of our residents should be of the highest priority, bar none. I am keenly interested in a detailed response to this concern. While "yes" is enough for me to throw the whole report out the window, perhaps a detailed response is appropriate.

The report to Public Hearing also has responses to my initial concerns outlined near the end, however, those responses are unsatisfactory. We maintain our disagreement with the findings and opinions.

Yours Truly,

Cam Milani
The Milani Group

11333 Dufferin St.
PO Box 663
Maple, ON L6A 1S5
Phone (905) 417-9591
Fax (905) 417-9034

C19.2

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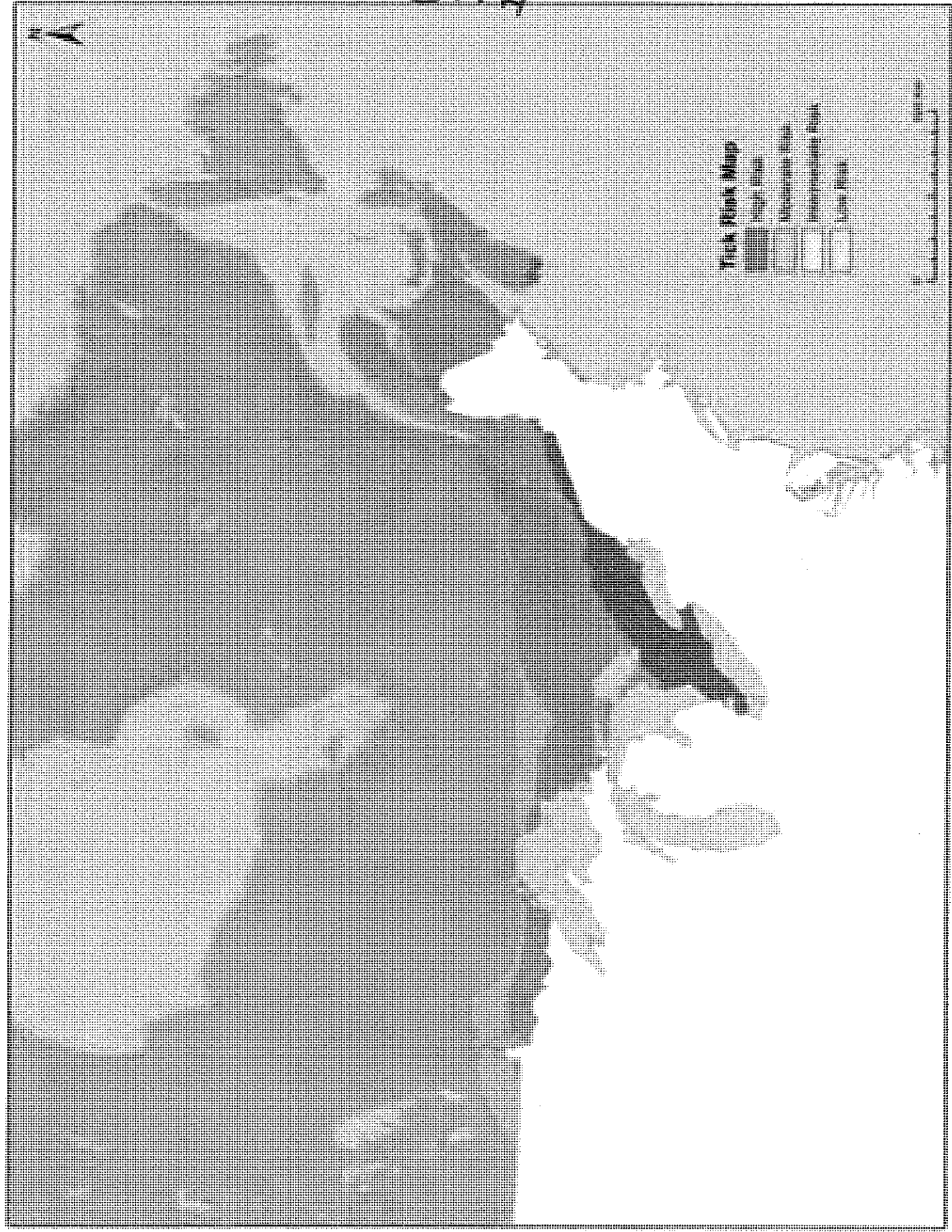
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Figure 2. A map showing areas predicted to be at risk for emergence of Lyme endemic areas in eastern and (inset) central Canada.



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Figure 2. A map showing areas predicted to be at risk for emergence of Lyme endemic areas in eastern and (inset) central Canada.



C19.5

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Vector-Borne Diseases

2013 Summary Report



Public Health Ontario

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Contents

Purpose	1
Background	1
West Nile Virus	1
Eastern Equine Encephalitis	3
Lyme Disease	4
Findings	5
West Nile Virus	5
Eastern Equine Encephalitis Virus	13
Lyme disease.....	16
Data Considerations and Limitations	24

Purpose

The purpose of this report is to provide an overview of the epidemiology of Ontario's most significant endemic vector-borne diseases in 2013. The target audience of this report is public health professionals. Of the five reportable vector-borne diseases, West Nile Virus (WNV) and Lyme disease are the only ones that occur in the province and are of public health importance in Ontario. There is limited mosquito surveillance on eastern equine encephalitis virus (EEEV), while malaria and yellow fever are travel-related diseases with no endemic transmission reported in Ontario.

Background

West Nile Virus

WNV is a mosquito-borne viral disease that was first recognized in Africa in the 1930s. The virus primarily circulates between birds and bird-biting mosquitoes. It is transmitted to humans when certain species of mosquito acquire the virus from biting an infected bird and then bite a human. These species of mosquitoes that transfer the virus from birds to humans are called bridge vectors. The main bridge vectors for WNV in Ontario are the species *Culex pipiens/restuans*. *Cx. pipiens/restuans* can be found in significant numbers in urban areas making WNV primarily an urban health risk. The majority of humans infected with WNV are asymptomatic; however, some can have nonneurological symptoms, such as a fever or rash, while very few will progress to neurological symptoms such as encephalitis. It is estimated that less than one percent of infections will have neurological complications².

WNV was first detected in New York in 1999 and since then has spread across most of North America. WNV was first detected in Ontario in birds in 2001, with the first human cases following in 2002. WNV became reportable in Ontario in 2003. Since then, WNV activity has varied from year to year. Most human cases of WNV are initially identified by health care providers when individuals present with clinically compatible signs and symptoms. A blood sample is submitted to a laboratory to confirm the diagnosis. Health care providers notify the public health unit (PHU) of confirmed and probable cases of WNV, which are then entered by the PHU into the integrated Public Health Information System (iPHIS) for provincial reporting requirements. Cases may also be reported by the Canadian Blood Services through their blood screening of donors. In addition, veterinarian sources of WNV surveillance contribute to overall understanding of WNV epidemiology, with equine cases being reported to the Ontario Ministry of Agriculture and posted on their website³.

² <http://www.cdc.gov/westnile/symptoms/index.html>

³ <http://www.omafra.gov.on.ca/english/livestock/horses/westnile.htm>

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Since 2002, PHUs in Ontario have conducted WNV mosquito surveillance from June to October each year. Mosquito surveillance serves as an early warning system for WNV. It also allows for the tracking of other mosquito-borne diseases, alerts Ontario's public health community to the introduction of new mosquito species, and facilitates the assessment of potential risks posed by emerging mosquito-borne diseases. Mosquito surveillance involves placing mosquito traps in various locations within the PHU, and then sending the collected mosquitoes to service providers for species identification and viral testing. Only certain species are tested for WNV.

Prior to 2011, PHUs were seasonally allotted WNV testing on three mosquito pools per mosquito trap and testing for EEEV on one mosquito pool if *Culiseta melanura* was identified. In 2011, the testing protocol was changed to one pool for WNV and two pools for EEEV. This change in testing was partially due to the discovery of EEEV positive mosquito pools in Ontario 2009 and 2010. These were the first years that mosquitoes tested positive in Ontario for EEEV. In addition, in 2010, there was increased EEEV activity in jurisdictions bordering Ontario. Quebec, New York, and Massachusetts had reported increased activity; and Michigan had reported three human cases and 57 equine cases, which were the highest numbers in that state in 30 years. It was determined that this change in mosquito viral testing was a proactive approach to determine the risk of EEEV in Ontario and gather baseline evidence for the extent of the virus in Ontario mosquitoes. The new order for viral testing was as follows:

1. *Culex pipiens/restuans* – WNV
2. *Culiseta melanura* – EEEV
3. *Coquilletidia perturbans* – EEEV
4. *Aedes vexans* – EEEV
5. Remaining order of WNV vectors.

This change in mosquito viral testing could have led to an underestimation of the number of positive WNV pools for 2013, making it difficult to compare directly to previous years. In addition, in recent years, due to an increased understanding of WNV biology and epidemiology, some PHUs have reduced the number of mosquito traps or focused their mosquito surveillance efforts to areas of greatest risk, e.g. there were 20,064 mosquito pools viral tested in 2005 compared to 13,675 mosquito pools tested in 2012.

The results of mosquito surveillance include the observation that *Ochlerotatus japonicus* (a possible WNV vector) has spread to most Ontario PHUs. *Oc. japonicus* was first identified in Ontario in 2001 through the mosquito surveillance program in one PHU. The detection of a very small number of *Ae. albopictus* (the Asian tiger mosquito) in 2005 and 2012, a vector of dengue and chikungunya. While this mosquito species is not established in Ontario and there is no endemic risk of these diseases, it is still important to note its occurrence and monitor its activity.

During the mosquito season PHO produces weekly reports on the status of WNV human cases, mosquitoes, and horses in the province.⁴

Eastern Equine Encephalitis

EEEV is also a mosquito-borne virus that circulates between birds and mosquitoes, with bridge vectors transferring the virus to humans and horses. It differs in that the main mosquito vector inhabits persistently flooded forests that tend to exist in rural areas. This makes EEEV a possible rural health risk. It is estimated that one third of all people infected with EEEV may have serious morbidity or mortality. EEEV has been present in the equine population in Ontario since 1938⁵. EEEV is not a reportable disease on its own, however it can be reported if a person develops encephalitis. Starting in 2009, mosquito surveillance data has detected the virus sporadically in the Ontario mosquito population. Although the risk is still low in Ontario and there has never been a human case of EEEV reported in the province, enhanced surveillance for the virus was implemented due to increases in EEEV detection in horses and mosquitoes in surrounding jurisdictions. It should also be noted that as of January 1, 2013, under the reporting regulation O. Reg 277/12 of the *Animal Health Act* of Ontario, WNV and EEEV in animals is now notifiable based on a positive laboratory test to the Chief Veterinarian for Ontario⁶. This change could lead to a possible increase in reported WNV and EEEV equine infections.

To date, no human cases of EEEV have been reported in Ontario. However, while most infected people will be asymptomatic, the risk of death among those who develop neurological symptoms is higher than WNV case fatality rates.

The main enzootic vector for EEEV in Ontario and the eastern U.S. is *Culiseta melanura*. This mosquito primarily feeds on birds and is mainly found in flooded forests and swamps. The larval form of this species develops in underwater crypts and attaches to plant stems to breathe. This lifecycle trait can make it difficult to find these larvae and control for them. With this species primarily inhabiting swamp-like areas, the majority of equine cases in Ontario occur in areas adjacent to swamps or flooded forests, making this more of a rural than urban health risk. Possible bridge vectors include *Ae. vexans* and *Cq. perturbans*. These bridge vectors are more easily captured in Ontario's mosquito light-traps than *Cs. melanura*. They are also thought to readily bite humans and can be found in both urban and rural areas. This is important because the greatest risk to humans will be present if EEEV is found in the bridge vectors.

⁴ <http://www.publichealthontario.ca/en/ServicesAndTools/SurveillanceServices/Pages/Vector-Borne-Disease-Surveillance-Reports.aspx>

⁵ Schofield F, Labzoffsky N. Report on cases of suspected encephalomyelitis occurring in the vicinity of st. george. *Rep Ont Dept Agric OVC*. 1938.

⁶ www.Ontario.ca/animalhealth

Lyme Disease

Lyme disease is a tick-borne bacterial disease transmitted to humans by the bite of an infected blacklegged tick (*Ixodes scapularis*). Blacklegged ticks are usually associated with deciduous or mixed forests, with the majority of human exposures occurring where blacklegged ticks have become established in those types of environments. Lyme disease was first recognized in North America in the late 1970s and has been reportable in Ontario since 1991. In the early 1990s, there was only one known endemic area in Ontario at Long Point Provincial Park. Since then Ontario has seen an increase in the distribution of blacklegged ticks and an expansion of their populations, particularly in the eastern Ontario. With this increase in blacklegged tick populations, there has also been an increase in locally acquired human cases of Lyme disease. The majority of these human cases are occurring in areas associated with the blacklegged tick populations.

The identification and reporting of human Lyme disease cases is similar to West Nile Virus cases. As above, when notified of a confirmed or probable case of Lyme disease, PHUs report cases via iPHIS as per provincial reporting requirements.

Findings

West Nile Virus

In 2013, there were 56 confirmed and probable cases of WNV in humans (Figure 1)⁷. The three-month period from July to September accounted for 96 percent (54/56) of these cases, of which 32 percent (18/56) were reported in August (Figure 1). The majority of human cases were reported in the Golden Horseshoe area, with 53.6 percent of human WNV cases reported from the City of Toronto, Peel Region, Niagara Region, and City of Hamilton (Figure 2 and Table 1). The number and incidence of reported confirmed and probable WNV cases in humans had started to trend upwards in 2011, but declined in 2013 (Figure 3). The incidence in 2013 was the sixth lowest recorded year in Ontario.

The number of positive mosquito pools decreased by over half (n=198) from 2012 to 2013, after a greater than 1.5 times increase from 2011 to 2012 (Figure 4).

Temperature has an important influence on the rate of mosquito development and the rate at which the virus can replicate inside the mosquito vectors. Warmer temperatures usually result in more mosquitoes that may carry WNV and, as a result, this increases the risk that humans might be bitten by an infected mosquito. Conversely, fewer positive mosquitoes lead to fewer human cases. The decrease in positive mosquito pools in 2013 could be partially attributed to cooler summer temperatures (June, July, and August). Based on Environment Canada's temperature rankings between 1948 and 2013, the year 2013 was the 34th warmest summer (Figure 4)⁸. This contrasts with the higher summer temperatures in 2011 (9th warmest) and 2012 (4th warmest), and is similar to the low abundance of vector mosquitoes and WNV activity observed from 2007 (27th warmest) to 2009 (58th warmest).

In 2013, the majority of positive mosquito pools were reported in the Golden Horseshoe area, as well as southwestern and southeastern Ontario (Figure 5). These areas are the predominately urban areas of Ontario and have large numbers of catch basins with standing water, which are ideal development sites for the main mosquito vectors. Figure 6 shows the minimum infection rate (MIR), which is an estimation of the minimum number of positive mosquitoes in the environment. Stated as the number positive mosquitoes per 1000, it is a population-adjusted rate used for comparison and analysis and is calculated by the formula (# WNV positive pools/total # of mosquitoes tested) 1000. While MIR can be used to indicate the level of positive mosquitoes in the environment, it can be somewhat misleading in areas with lower numbers of mosquito traps. In those areas, one positive mosquito pool can make the MIR seem quite large, when compared to the level of WNV activity.

In 2013, the species of mosquitoes that tested positive for WNV included *Cx. pipiens/restuans*, *Aedes vexans*, *Ochlerotatus triseriatus/hendersoni*, *Anopheles punctipennis*, and *Oc. japonicus*. *Cx.*

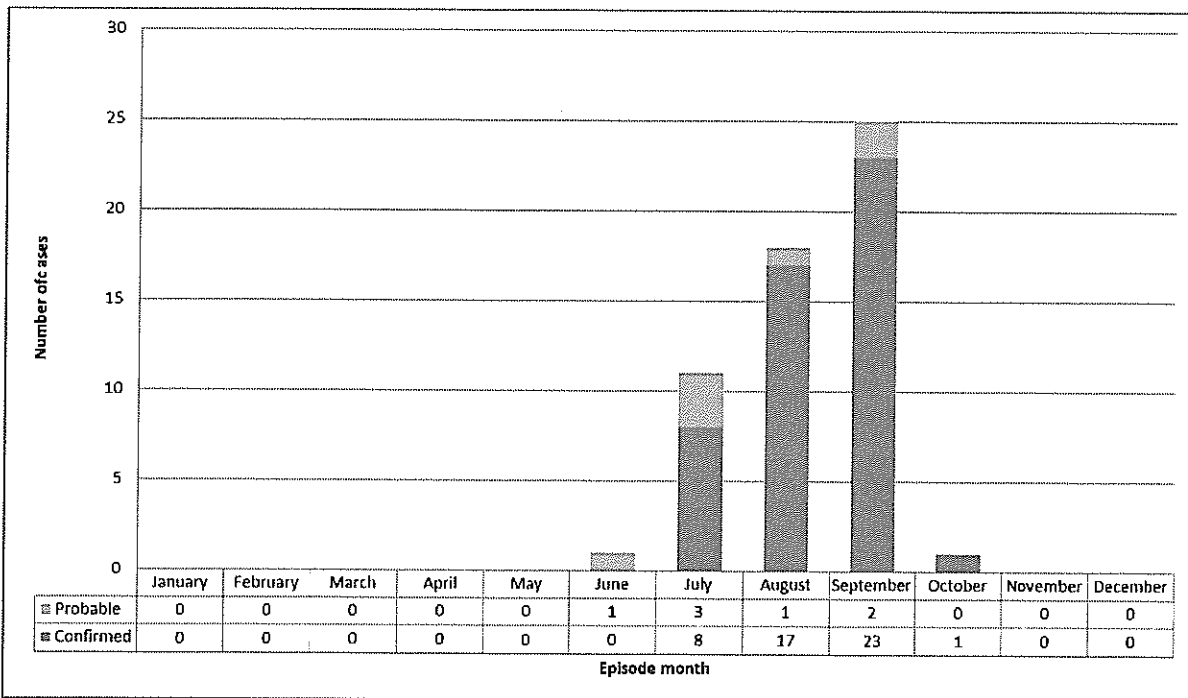
⁷ For WNV case definition see: http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/infdispro.aspx

⁸ <http://www.ec.gc.ca/adsc-cmda/default.asp?lang=En&n=D48C5C94-1>

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pipiens/restuans was the species that tested positive for WNV most frequently; however, *Cx. pipiens/restuans* are specifically targeted for WNV testing, as this is the vector primarily responsible for human cases.

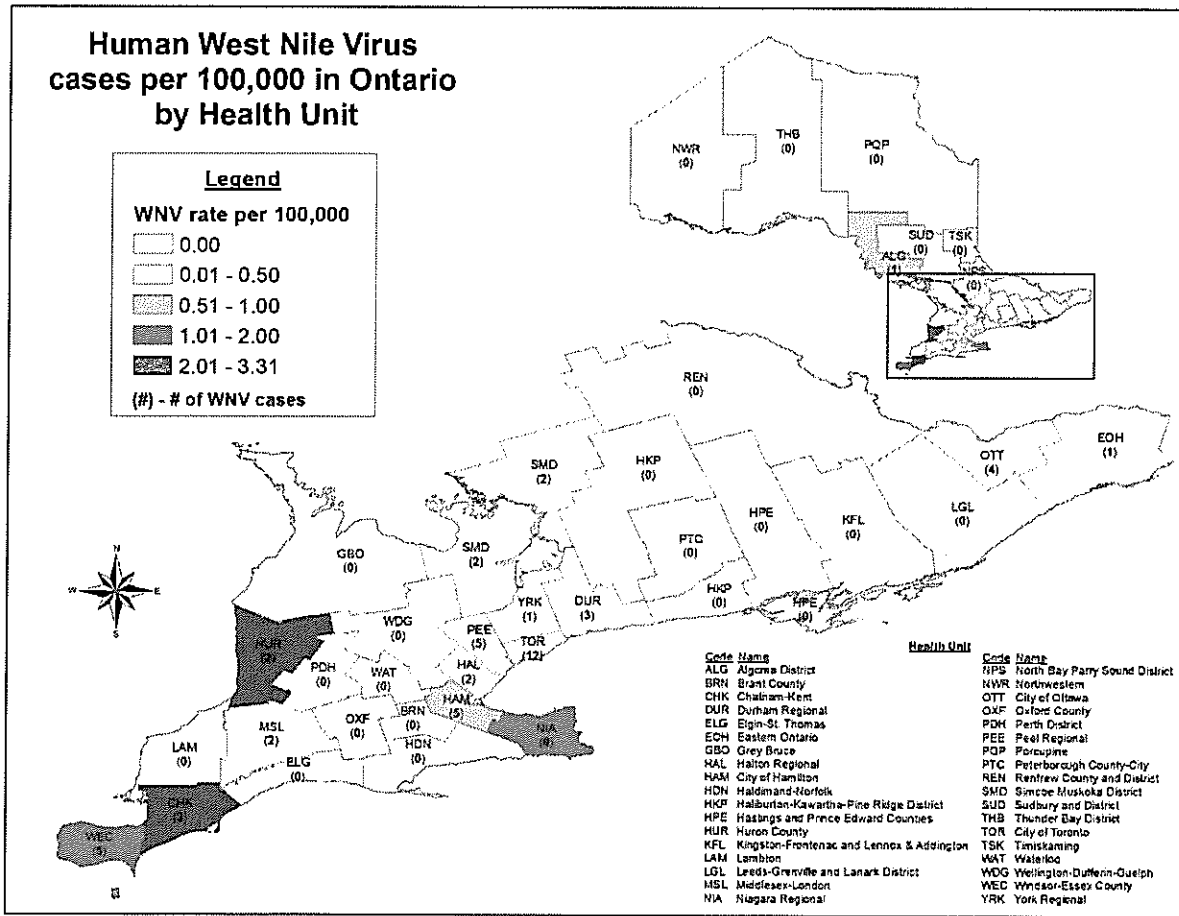
Figure 1: Number of confirmed and probable West Nile Virus cases by episode month: Ontario, 2013



Data source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

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Figure 2: Incidence rate per 100,000 population and number of confirmed and probable West Nile Virus cases by health unit of residence: Ontario, 2013



Data sources:

WNV cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/02].

Population estimates (for rate calculations): Ontario Ministry of Health and Long-term Care, IntelliHEALTH Ontario, extracted by Public Health Ontario [2013/09/16].

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Table 1: Number and incidence rate (per 100,000 population) of reported confirmed and probable human cases of West Nile Virus by health unit of residence: Ontario, 2013

HEALTH UNIT	Confirmed	Probable	Total	Rate* (per 100,000)
Algoma District	1	0	1	0.86
Chatham-Kent	3	0	3	2.76
City of Hamilton	5	0	5	0.92
City of Ottawa	4	0	4	0.43
City of Toronto	12	0	12	0.43
Durham Regional	3	0	3	0.47
Eastern Ontario	1	0	1	0.50
Halton Regional	2	0	2	0.38
Huron County	0	2	2	3.31
Middlesex-London	1	1	2	0.43
Niagara Regional Area	6	2	8	1.79
Peel Regional	4	1	5	0.36
Simcoe Muskoka District	2	0	2	0.38
Windsor-Essex County	4	1	5	1.24
York Regional	1	0	1	0.09
Ontario Overall	49	7	56	0.41

Data sources:

*Rate based on total human cases (confirmed and probable combined)

WNV cases: Ontario Ministry of Health and Long-term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

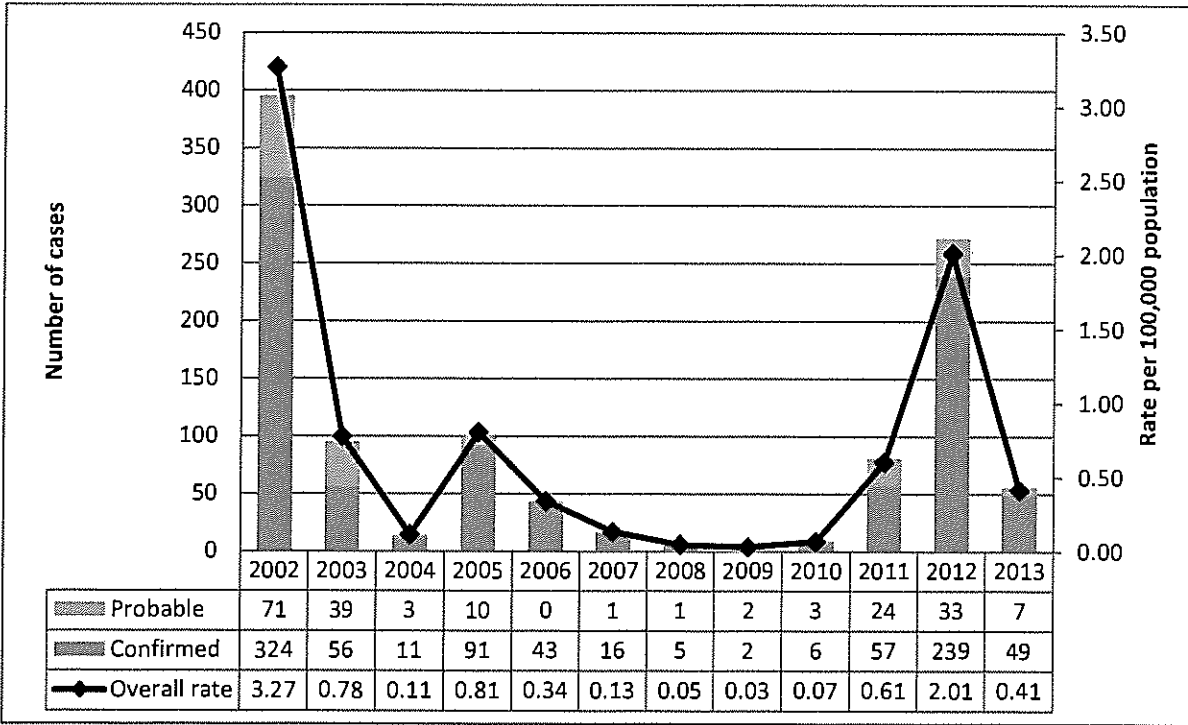
Population estimates (for rate calculations): Ontario Ministry of Health and Long-term Care, IntelliHEALTH Ontario, extracted by Public Health Ontario [2013/09/16]. NOTE: Population counts for 2012 are used to estimate health unit and provincial population counts for 2013.

Notes:

- Health unit (HU) refers to the HU where the case resided at the time of identification and not necessarily the place of disease exposure or acquisition.
- The data only represent confirmed and probable cases of West Nile Virus that were reported to public health units and recorded in iPHIS. Underreporting is assumed.
- iPHIS is a dynamic disease reporting system which allows ongoing updates to data previously entered. As a result, data extracted from iPHIS represent a snap shot at the time of extraction and may differ from previous or subsequent reports.

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Figure 3: Number of confirmed and probable human West Nile Virus cases by year: Ontario, 2002–13



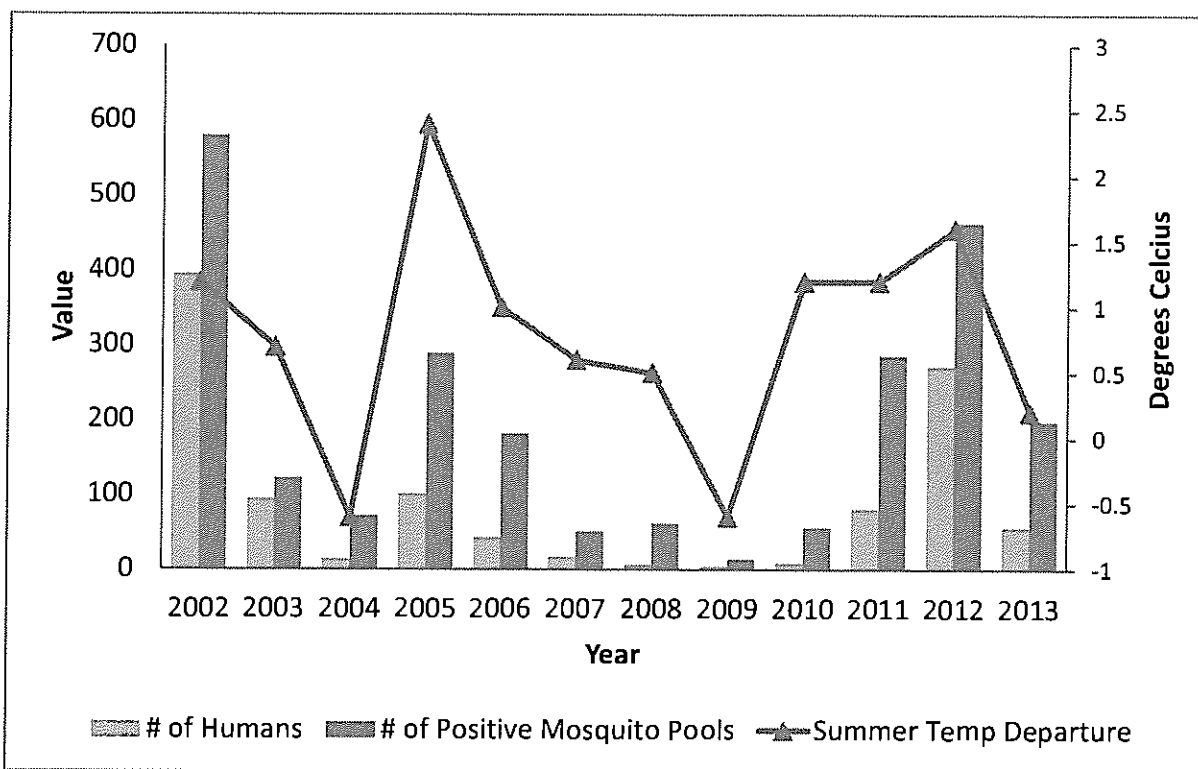
Data Sources:

WNV cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

Population estimates (for rate calculations): Ontario Ministry of Health and Long-term Care, IntelliHEALTH Ontario, extracted by Public Health Ontario [2013/09/16].

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Figure 4: Number of reported West Nile Virus human cases and positive mosquito pools; and average summer temperature departures: Ontario, 2002–13



Data Sources:

WNV cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

Mosquito data: PHO Mosquito Database [2014/02/21]

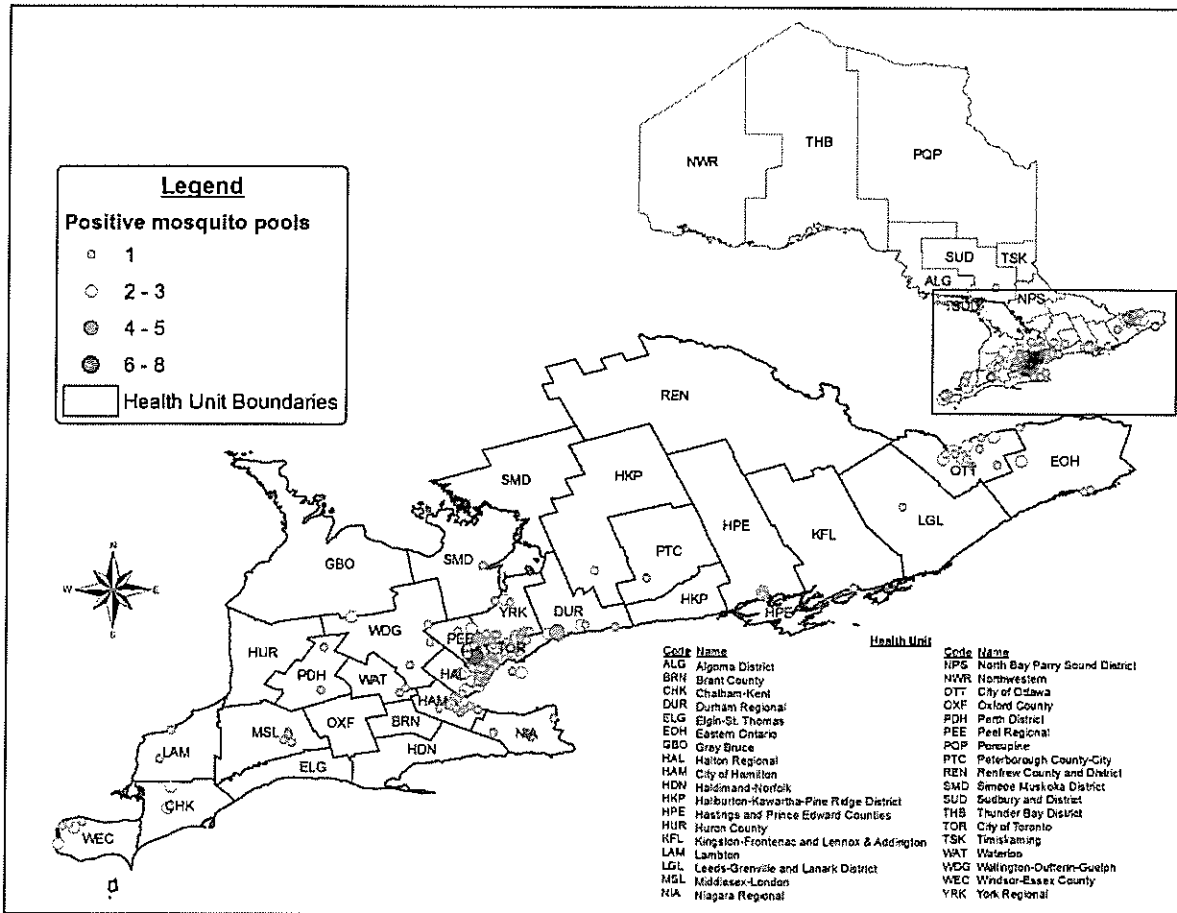
Weather Data: Environment Canada⁹

Note: Temperature departures are computed at each observing station and for each year by subtracting the relevant baseline average (defined as average over 1961-1990 reference period) from the relevant seasonal and annual values. Additional information can be found on the Environment Canada website.

⁹ <http://www.ec.gc.ca/adsc-cmda/default.asp?lang=En&n=F3D25729-1>

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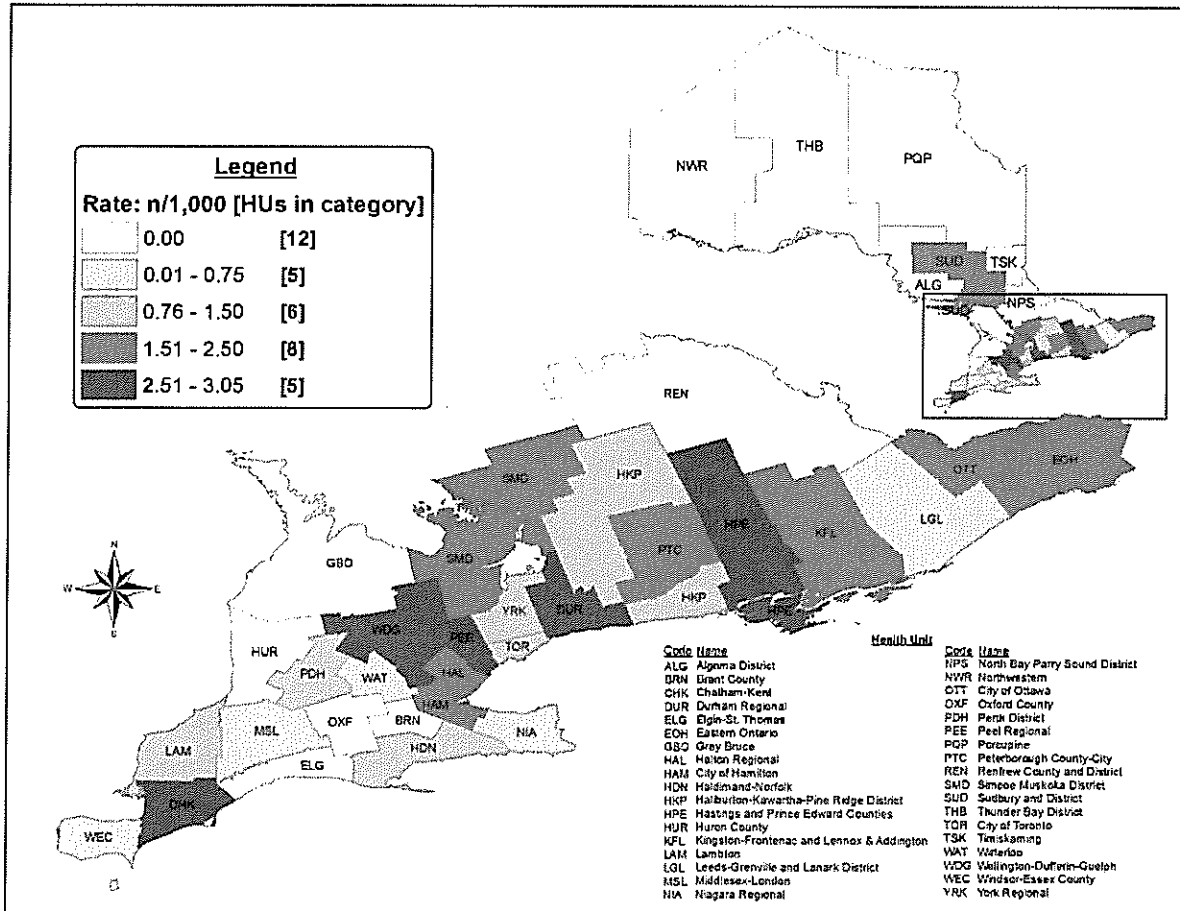
Figure 5: Location and number of mosquito pools positive for West Nile Virus: Ontario, 2013



Data source: PHO Mosquito Database [2014/02/19]

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Figure 6: Minimum infection rate of positive mosquito pools: Ontario, 2013



Data source: PHO Mosquito Database [2014/02/19]

Eastern Equine Encephalitis Virus

Ontario has yet to report a confirmed human case of EEEV. During the three year EEEV mosquito pilot testing period (2011-2013), there was 249,775 mosquitoes tested in 18,177 mosquito pools. Of those, 526 mosquitoes were identified as *Cs. melanura* and were tested in 181 pools. Of all 18,177 pools tested for EEEV, only one tested positive (*Cq. perturbans*) in 2013, in the Eastern Ontario HU. Based on the low number of *Cs. melanura* identified and only one pool testing positive, PHO recommends that PHUs revert to the previous WNV testing order of preference that is listed in the ministry's 2010 *West Nile Virus Preparedness and Prevention Plan*. Health units can still opt to keep the EEEV order of testing if their risk assessments show a reason to continue testing for EEEV in their jurisdiction.

The first year that Ontario recorded EEEV positive mosquitoes was in 2009. These positive mosquitoes were found through Health Canada's First Nations and Inuit Health Branch's (FNIHB) WNV mosquito program, which mirrors Ontario's program (Table 2). The positive mosquitoes were identified in a First Nations community within Simcoe Muskoka District HU. In 2010, EEEV positive *Cs. melanura* mosquitoes were again found in the same First Nations community and also in North Bay-Parry Sound District Health Unit.

Equine Surveillance

EEEV has been reported in Ontario in horses, emus, and pheasants dating back to 1938 (Table 2, Figure 7). In 2013, there was one EEEV equine cases reported by the Ontario Ministry of Agriculture and Food (OMAF) in Simcoe Muskoka District HU. Ontario animal cases occur in predominantly rural health units with the cases occurring in different locations each year. Like WNV, horses are dead-end hosts but are an indicator of EEEV positive mosquitoes in the area.

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Table 2: Number of *Culiseta melanura* captured, EEEV-positive mosquito pools and EEEV horses: Ontario, 2002–13

Year	Number of <i>Cs. Melanura</i>	Number of EEEV Positive Mosquito Pools	Number of EEEV Horse Cases
2002	15	0	1
2003	5	0	11
2004	26	0	2
2005	11	0	no data
2006	127	0	no data
2007	32	0	0
2008	438	0	4
2009	298	12 ¹⁰	2
2010	218	3 ¹¹	3
2011	222	0	4
2012	67	0	0
2013	245	1	1

Data sources:

Horse data: OMAF online from <http://www.omafra.gov.on.ca/english/livestock/horses/westnile.htm#surveillance>

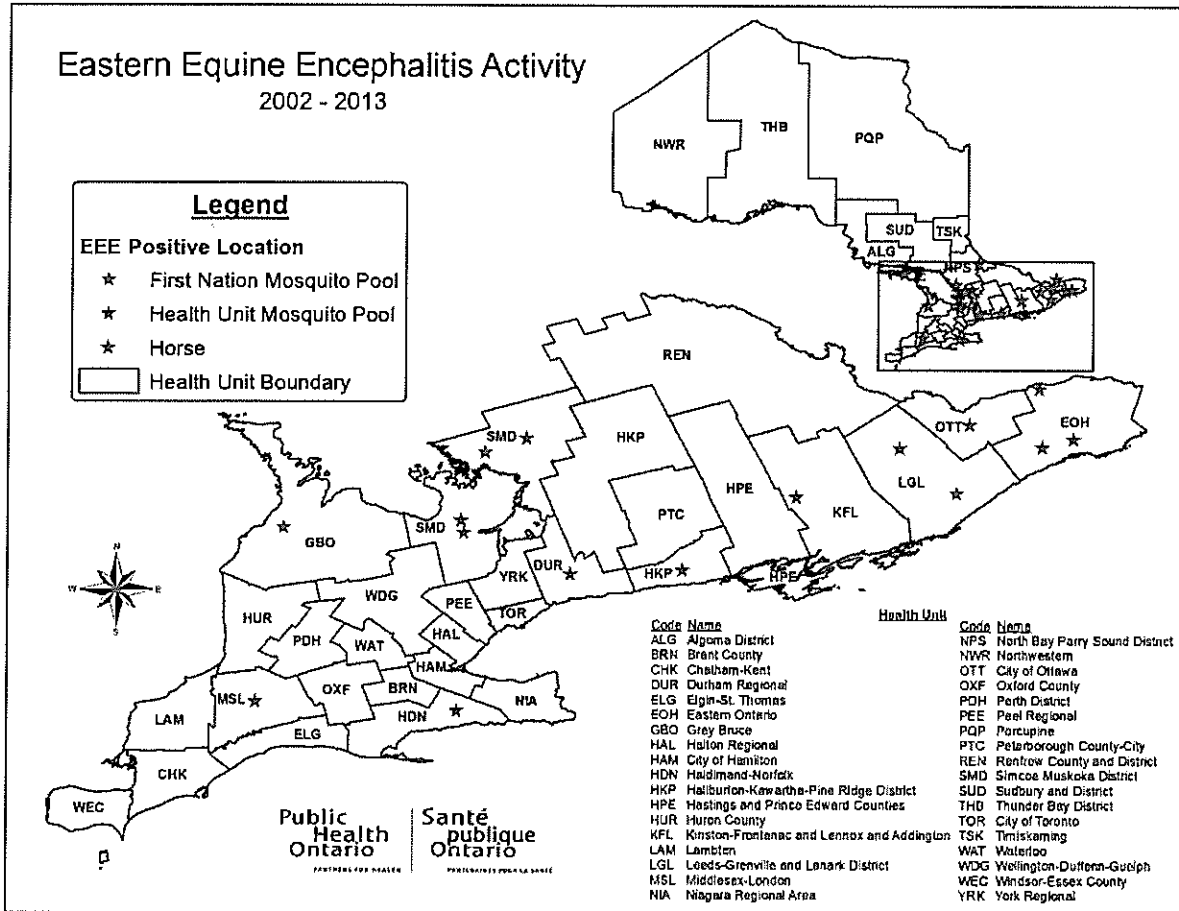
Mosquito data: PHO Mosquito Database [2013/02/21]

¹⁰ First Nations: 10 pools *Culiseta melanura* and 2 pools *Aedes vexans*.

¹¹ Health Units (NPS) 1 pool and First Nations 2 pools all *Culiseta melanura*

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Figure 7: Eastern Equine Encephalitis Virus activity: Ontario, 2002–13



Data sources:

Horse data: OMAF online from

<http://www.omafra.gov.on.ca/english/livestock/horses/westnile.htm#surveillance>

Mosquito data: PHO Mosquito Database [2014/02/19]

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Lyme disease

In 2013, there were 317 human cases of Lyme disease reported in Ontario¹². The overall incidence rate of confirmed and probable Lyme disease cases in Ontario in 2013 was 2.35 cases per 100,000 population (Figure 8). This is over one and a half times higher than the incidence rate of 1.41 case per 100,000 population reported in 2012 (Figure 8). Although the incidence rate of Lyme disease in Ontario has been steadily increasing since 2002, it is much lower than in the U.S. overall and New York State, which had incidence rates of 7.0 cases and 10.4 cases per 100,000 population, respectively, in 2012.¹³

The number of Lyme disease cases peaked from May to September 2013, with 74.4 percent of cases reported between June and August (Figure 9). This peak during the summer months is similar to other Lyme disease-endemic regions in the United States and Canada and coincides with both increased human outdoor activities and presence of infectious nymphs in the environment. Feeding nymphs are much more difficult to detect than adults, which leads to the increased likelihood of longer attachment times for nymphs and a higher risk of Lyme disease transmission.

Of the 317 confirmed and probable Lyme disease cases reported in Ontario in 2013, there were 247 (77.9 percent) with exposure locations reported. Of the reported exposure locations, 186 (58.7 percent) indicated an Ontario exposure (i.e. infections were locally acquired) (Table 3).

Eight PHUs¹⁴ reported 10 or more confirmed/probable cases of Lyme disease in 2013, which accounted for 77.3 percent (245/317) of all cases reported in the province (Table 4). No cases were reported by Ontario's northern-most PHUs. The top three PHUs with confirmed/probable cases in 2013 were all from eastern Ontario (KFL, LGL, and OTT) (Table 4). While the six eastern PHUs only account for 13 percent¹⁵ of Ontario's population, they represent 59.6 percent (189/317) of the human cases. Of the cases in the eastern region with recorded exposures, 88.3 percent (121/137) were exposed in Ontario, while the remainder of health units with reported exposures had 59.1 percent (65/110) of exposures occurring in Ontario. Figure 10 shows the geographic distribution of Lyme disease exposure locations among locally-acquired cases in Ontario.

The locations in Ontario with higher incidence rates and Ontario exposure locations are primarily in the eastern region of Ontario. This is also the region in Ontario with the largest numbers of blacklegged tick submissions (Figure 11). In 2013, 2893 blacklegged ticks were submitted from locations where the

¹² Data from 2009 onwards include both confirmed and probable cases. The Lyme disease confirmed case definition changed in 2009 such that clinical cases were no longer considered confirmed. Clinical cases are now considered probable cases and case counts for 2009 and subsequent years include both confirmed and probable cases to ensure valid comparisons of trends over time.

For Lyme disease case definition see:

http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/infdispro.aspx

¹³ Source: <http://www.cdc.gov/lyme/stats/chartstables/incidencebystate.html>

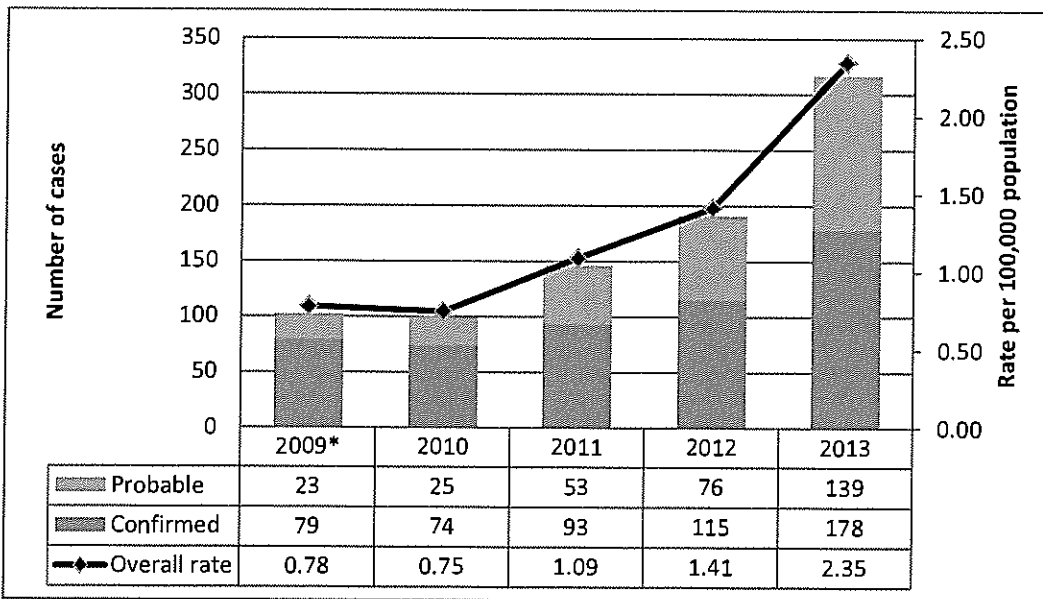
¹⁴ Toronto; Leeds-Grenville and Lanark District; City of Ottawa; Kingston-Frontenac, Lennox and Addington; Eastern Ontario; York Region; Hastings and Prince Edward Counties; and Durham Region.

¹⁵ Population Estimates 1986-2012, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: 16-Sep-2013.

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submitter's residence was known, with a total of 3039 blacklegged ticks submitted to PHO. To date, this is the highest number of blacklegged tick submissions to PHO (Table 3).

Figure 8: Number of cases of Lyme disease and incidence rate per 100,000 population: Ontario, 2009–2013



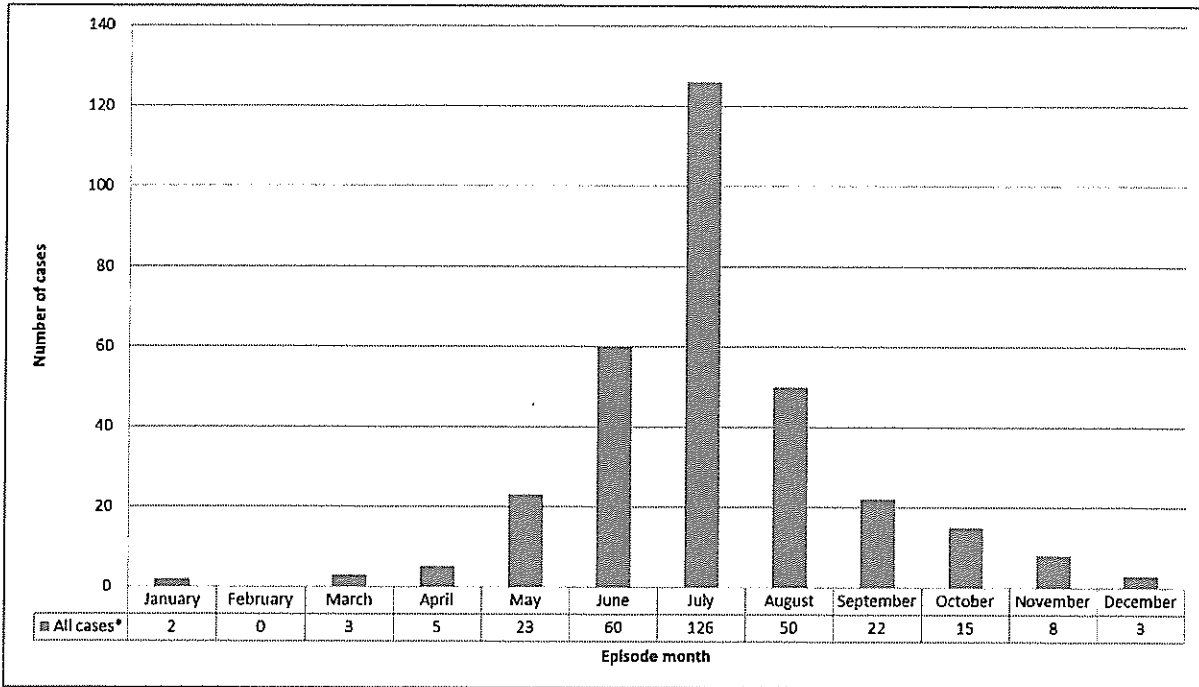
Data sources:

Lyme disease cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

Population data obtained from IntelliHEALTH Ontario, retrieved by Public Health Ontario [2013/09/16].

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Figure 9: Distribution of Lyme disease cases* by month: Ontario, 2013



Data source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

***Note:** Includes confirmed and probable cases. The Lyme disease confirmed case definition changed in 2009 such that clinical cases were no longer considered confirmed. Clinical cases are now considered probable cases and case counts for 2009 and subsequent years include both confirmed and probable cases to ensure valid comparisons of trends over time.

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Table 3. Lyme disease cases by exposure setting, and total number of I. scapularis submissions to PHO: Ontario, 2008–13

Exposure Location	Year											
	2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%
Ontario	55	56.1	47	46.1	41	41.4	98	67.1	119	62.3	186	58.7
Within Canada, outside Ontario	2	2.0	3	2.9	2	2.0	5	3.4	5	2.6	8	2.5
Outside Canada	35	35.7	34	33.3	32	32.3	34	23.3	39	20.4	51	16.1
Unknown	3	3.1	4	3.9	3	3.0	0	0.0	1	0.5	2	0.6
Missing	4	4.1	16	15.7	22	22.2	11	7.5	32	16.8	78	24.6
Total number of cases	98		102		99		146		191		317	
Total number of I. scapularis submissions	1482		120		226		2291		2535		3019	

Data source: Lyme Disease cases, Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/03/10] for 2008-2011, [2013/12/31] for 2012, and [2014/02/19] for 2013.

Tick Data, Public Health Ontario (PHO), extracted [2014/03/12]

Note: Cases can report multiple exposure locations; as a result proportions may not add to 100%.

The Lyme disease confirmed case definition changed in 2009 such that clinical cases were no longer considered confirmed. Clinical cases are now considered probable cases and case counts for 2009 and subsequent years include both confirmed and probable cases to ensure valid comparisons of trends over time.

Missing data represents case not reporting any exposure information.

The high proportion of cases with missing exposure information in 2013 likely due in part to delayed reporting.

The total number of cases each year was used as the denominator to calculate proportions.

For cases reporting multiple exposure locations, only unique exposure locations were counted. For example, if a case reported multiple exposures in Ontario, the exposure was counted once.

For cases reporting both known and unknown exposure locations, only the known exposure location was counted.

For example, if a case reported exposure location as "Ontario" and "Unknown", only the Ontario exposure was counted.

PHO stopped accepting ticks from non-humans in 2009.

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Table 4: Number and incidence rate (per 100,000 population) of reported confirmed and probable human cases of Lyme disease by health unit of residence: Ontario, 2013

Health Unit	Confirmed	Probable	Total	Rate* (per 100,000)
Algoma District	1	0	1	0.86
Brant County	1	0	1	0.71
Chatham-Kent	4	1	5	4.61
City of Hamilton	1	2	3	0.55
City of Ottawa	12	34	46	5.00
City of Toronto	22	7	29	1.04
Durham Regional	7	5	12	1.88
Eastern Ontario	9	20	29	14.41
Grey-Bruce	3	0	3	1.83
Haldimand-Norfolk	3	0	3	2.72
Haliburton-Kawartha-Pine Ridge District	2	4	6	3.34
Halton Regional	3	3	6	1.14
Hastings and Prince Edward Counties	10	6	16	9.90
Huron County	0	1	1	1.65
Kingston-Frontenac and Lennox and Addington	37	14	51	25.75
Lambton	0	2	2	1.53
Leeds, Grenville, and Lanark District	24	21	45	26.58
Middlesex-London	3	1	4	0.86
Niagara Regional Area	5	0	5	1.12
North Bay Perry Sound District	1	0	1	0.79
Oxford County	1	0	1	0.92
Peel Regional	5	2	7	0.50
Perth District	1	0	1	1.30

C 19.29

Health Unit	Confirmed	Probable	Total	Rate* (per 100,000)
Peterborough County-City	1	4	5	1.54
Renfrew County and District	0	2	2	1.93
Simcoe Muskoka District	1	0	1	0.19
Waterloo	6	1	7	1.30
Wellington-Dufferin-Guelph	2	2	4	1.43
Windsor-Essex County	1	2	3	0.74
York Regional	12	5	17	1.57
Ontario Overall	172	119	291	1.35

Data sources:

*Rate based on total human cases (confirmed and probable combined)

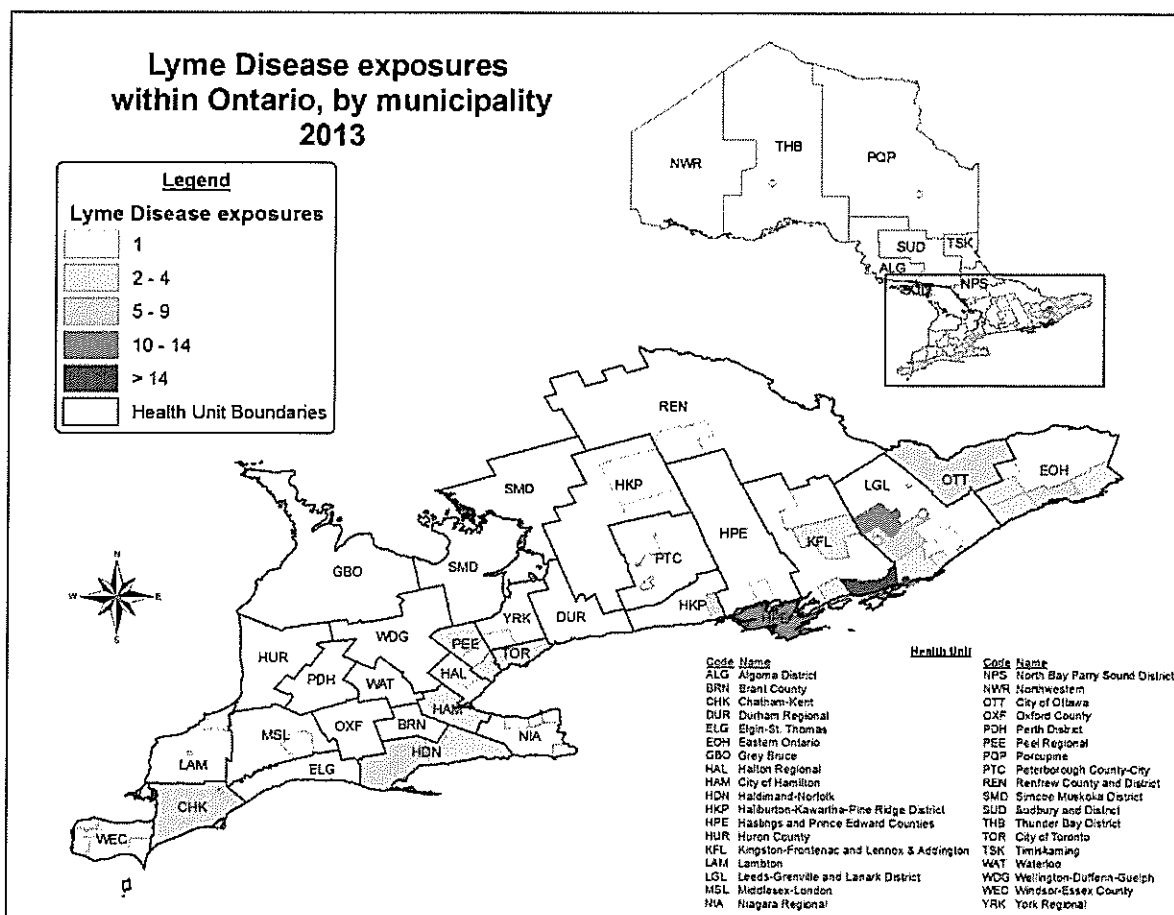
Lyme disease cases: Ontario Ministry of Health and Long-term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/04].

Population estimates (for rate calculations): Ontario Ministry of Health and Long-term Care, IntelliHEALTH Ontario, extracted by Public Health Ontario [2013/09/16]. NOTE: Population counts for 2012 are used to estimate health unit and provincial population counts for 2013.

Notes: Health unit (HU) refers to the HU where the case resided at the time of identification and not necessarily the place of disease exposure or acquisition. The data only represent confirmed and probable cases of Lyme disease that were reported to public health units and recorded in iPHIS. Underreporting is assumed. iPHIS is a dynamic disease reporting system which allows ongoing updates to data previously entered. As a result, data extracted from iPHIS represent a snap shot at the time of extraction and may differ from previous or subsequent reports.

C 19.30

Figure 10: Municipalities identified as the most likely exposure location for locally acquired Lyme disease cases: Ontario, 2013



Data source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/02/19].

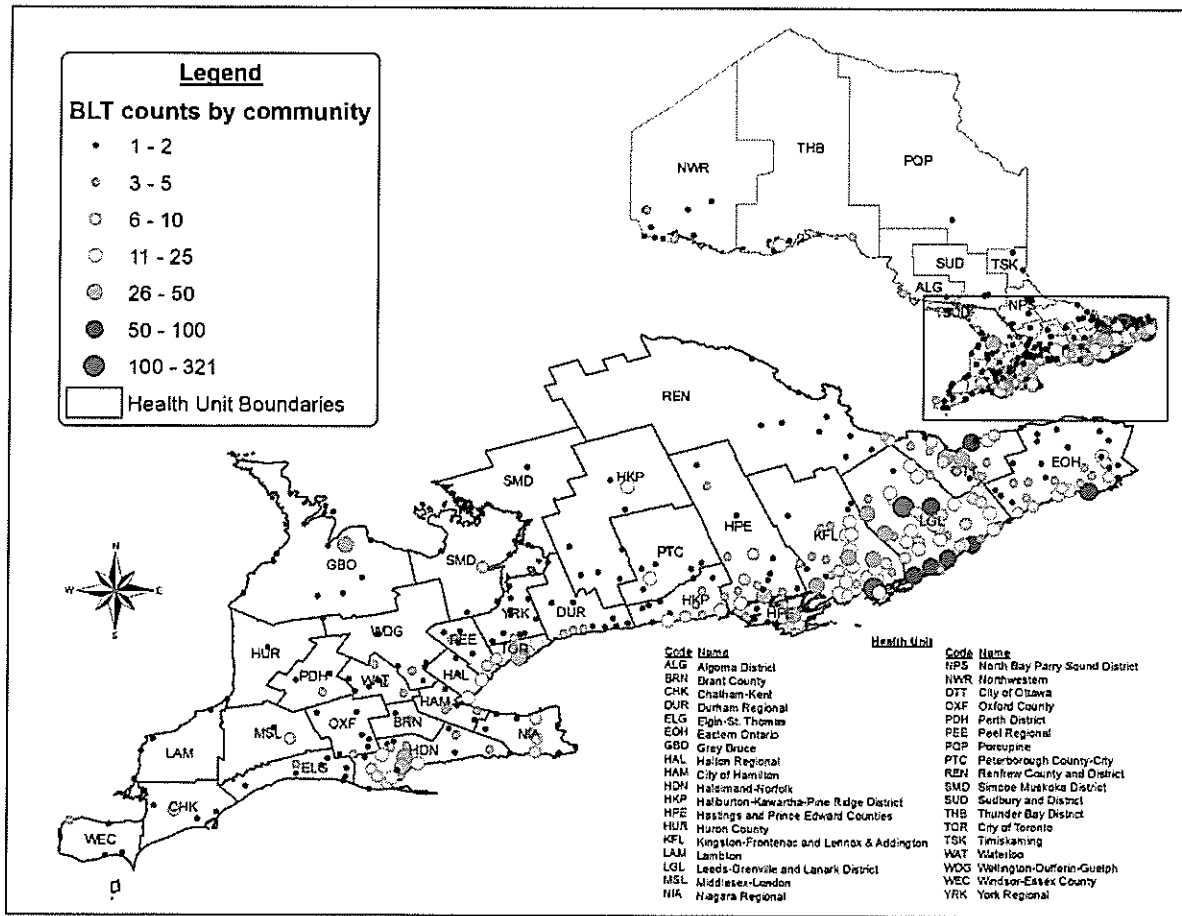
Note: Includes confirmed and probable cases.

For cases reporting both known and unknown exposure locations, only the known exposure location was counted. For example, if a case reported exposure location as "Ontario" and "Unknown", only the Ontario exposure was counted. Cases can report multiple exposures.

Circles in southern Ontario represent small municipalities that would not be visible. Circles in northern Ontario represent unorganized areas that are not within a municipality.

C19.31

Figure 11: The location and number of blacklegged ticks submitted to Public Health Ontario, based on the submitter's community of residence: Ontario, 2013



Data source: Public Health Ontario (PHO), extracted [2014/03/12]

Data Considerations and Limitations

- The data are current as of February 4, 2014 for Lyme disease and West Nile Virus case counts. Lyme disease exposures are current as of March 10, 2013 for 2008 to 2011, December 31, 2013 for 2012, and February 19, 2014 for 2013.
- The data only represent cases reported to public health units and recorded in iPHIS. Counts are subject to varying degrees of underreporting depending on the disease.
- iPHIS is a dynamic disease reporting system which allows ongoing updates to data previously entered. As a result, data extracted from iPHIS represent a snap shot at the time of extraction and may differ from previous or subsequent reports.
- Cases are reported based on "episode date". The Episode Date is an estimate of the onset date of disease for a case. In order to determine this date, the following hierarchy is in place in iPHIS: Onset Date > Specimen Collection Date > Reported Date
- Cases for which the Disposition Status/Episode Status/Encounter Status was reported as "ENTERED IN ERROR", "DOES NOT MEET DEFINITION", "DUPLICATE-DO NOT USE" or any variation on these values have been excluded.
- Case counts include only the following classifications: confirmed and probable.
- Orientation of case counts by geography is based on the diagnosing health unit (DHU). Cases for which the DHU was reported as MOHLTC (to signify a case that is not a resident of Ontario) or Muskoka Parry Sound (a health unit that no longer exists) have been excluded.
- Diagnosing health unit refers to the case's health unit of residence at the time of illness onset and not necessarily the location of exposure.
- The possibility of duplicates exists because duplicate sets were not identified and excluded unless they were resolved prior to data extraction either at the local or provincial level.
- Exposures cannot be definitively attributed to illness, but are assumed to be possible sources of illness.
- The number of reported exposures may be underestimated because of missing data.
- Cases may report multiple exposures.

C19.33

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West Nile Virus Vector Larval Mosquito Monitoring Report - 2013

February 2014



Toronto and Region
Conservation
for The Living City

C19.35

Acknowledgements

TRCA recognizes the contributions from our staff: Danielle Dellandrea, Sarah Scharfenberg, and Paula Reynolds for their support in collecting and managing the data, Ming Guo for database development and Parth Sheth for his assistance in GIS mapping.

We would also like to thank our regional public health partners for their support in 2013.

The West Nile Virus Surveillance and Monitoring Program is a part of TRCA's Regional Watershed Monitoring and Reporting Program. It is funded by the following partners:



Executive Summary

West Nile virus (WNV) is primarily a bird pathogen that first appeared in Ontario in 2001. Evidence suggests that two key vector mosquito species, *Culex pipiens* and *Culex restuans*, are primarily responsible for spreading the disease to humans in Ontario (Kilpatrick *et al.* 2005; Hamer *et al.* 2009). Toronto and Region Conservation Authority's (TRCA's) data show that *Culex pipiens*—an urban mosquito species, is the most abundant vector species within our jurisdiction. The vector population dynamics are influenced by biological and environmental factors. Forecasting an outbreak is difficult, therefore, WNV management strategies undertaken collectively by the provincial and regional health agencies in Ontario focus on prevention through education and mosquito control measures.

The number of human WNV case fluctuates annually. An increase in WNV activity occurred in 2011 and it persisted into 2012, making 2012 the second worst outbreak year since 2002 in Ontario. In 2013, a total of 108 human cases were reported in Canada compared to 450 cases in 2012. In the Greater Toronto Area (GTA), 19 human WNV cases were reported (Public Health Ontario, 2013).

The WNV Larval Mosquito Surveillance and Monitoring Program was established in 2003 as a measure of due diligence and at the request of TRCA's regional public health partners. The program has a three-pronged approach, which includes public education and communication, collaboration with regional public health units, and larval mosquito monitoring. The most important objective is to reduce WNV risk to residents and conservation area visitors. In 2013, this objective was achieved by identifying five WNV hotspots and taking appropriate intervention measures to reduce mosquito larvae, through public education, and through collaboration with regional public health partners.

Wetland habitats are conventionally considered mosquito-friendly habitats. However, monitoring data collected by TRCA since 2003 have shown that healthy functioning wetlands generally do not support large vector mosquito populations. When a WNV vector mosquito hot spot is detected, appropriate control measures can be taken to eliminate mosquito larvae if warranted.

Larval mosquito monitoring was undertaken in 45 sites across TRCA jurisdiction from June 3 to August 22 in 2013. In total, 7146 mosquito larvae were collected, including 6650 larvae from 39 wetlands and 496 larvae from 6 stormwater management ponds (SWMPs). Although most mosquitoes were collected from wetlands, higher concentrations of vector mosquito larvae were collected in SWMPs.

In total, 11 mosquito species including 7 WNV vector species and 4 non-vector species were identified. The most widespread species was *Culex territans*, which inhabited 38 of the 45 sites. The two key vectors, *Culex pipiens* and *Culex restuans*, were found at 15 and 8 sites respectively. Similar to the results from previous years, vector species at SWMPs comprised 94% of the mosquito larvae collected, while *Culex territans*, the only non-vector species made up the remaining 6%. *Culex pipiens* was the predominant species (73.6%) found in the SWMPs. The other key vector species *Culex restuans* represented 3.8% of the larvae collected in the SWMPs.

C19.37

Although most mosquitoes were collected from wetlands, higher concentrations of vector larvae were collected in SWMPs.

Five sites were identified as having high numbers of vector species larvae in 2013: Grenadier Pond in High Park, L'Amoreaux North Pond, Topham Pond, Goldfish Pond in Tommy Thompson Park, and an unnamed wetland in Vaughan. Each of these sites received larvicide treatment by the regional health units to proactively address WNV concerns.

One standing water complaint was investigated. The pond at Archetype House in Kortright Centre was drained and stocked with fish for mosquito control. The control method was effective, no mosquito larvae were found in subsequent visits.

Table of Contents

1. Introduction	1
2. Public Education and Communication	2
2.1 Increasing public awareness of West Nile virus	2
2.2 Standing Water Complaint	3
2.2.1 Standing Water Complaint Procedure.....	3
2.2.2 Standing Water Complaint Sites	3
3. Collaboration with Regional Health Units.....	4
4. Larval Mosquito Monitoring	4
4.1 Methods.....	4
4.1.1 Monitoring Site Location.....	4
4.1.2 Collection and identification	6
4.1.3 WNV Risk Assessment	6
4.2 Results	7
4.2.1 Mosquito composition and West Nile virus Risk Assessment	7
4.2.2 Wetlands	8
4.2.3 Stormwater Management Ponds.....	10
4.3 Vector Mosquito Larvae Abundance and the Spread of WNV	10
5. Conclusions.....	12
6. References.....	13

List of Figures

Figure 1. Human West Nile virus cases in Ontario and Canada, 2002 - 2013.....	2
Figure 2. Mosquito larval identification workshop hosted by TRCA	4
Figure 3. Location of West Nile virus monitoring sites, 2013	5
Figure 4. Field technician sampling with a standard mosquito dipper	6
Figure 5. Number of Larvae collected per 100 dips, 2013	7
Figure 6. Mosquito species composition in wetlands in 2013	8
Figure 7. Larvicide treatment notification display.....	9
Figure 8. Mosquito species composition in stormwater management ponds, 2013.....	10
Figure 9. Numbers of vector larvae, positive pools, and human cases, 2013.....	11

Appendices

- Appendix A. TRCA Standing Water Complaint Procedure
- Appendix B. Monitoring and Risk Assessment Results 2013

1. Introduction

This report provides an overview of Toronto and Region Conservation Authority's (TRCA) West Nile virus (WNV) vector larval mosquito monitoring program for 2013. WNV primarily exists between birds and bird-biting mosquitoes. The virus transmits to humans through the bite of an infected mosquito which had fed on infected birds. Humans are considered dead-end hosts whereby humans can be infected with the virus, but do not spread it. For people who become infected, the majority will have no symptoms or only mild flu-like symptoms. Severe cases of WNV, including the development of meningitis and encephalitis, are extremely rare but can be fatal.

Mosquito species that are capable of carrying and transmitting WNV are referred to as *vector* species. Species that do not transmit the virus are *non-vector* species. There are 57 mosquito species in Ontario, of which only 13 species are WNV vectors. Studies (Kilpatrick *et al.* 2005; Hamer *et al.* 2009) suggested that *Culex pipiens* and *Culex restuans* are not only the primary species in spreading the disease among birds, but also the most responsible species for spreading the virus into humans. Most other mosquito species do not pose serious WNV threats and their larvae are important food sources for fish and other predatory aquatic organisms.

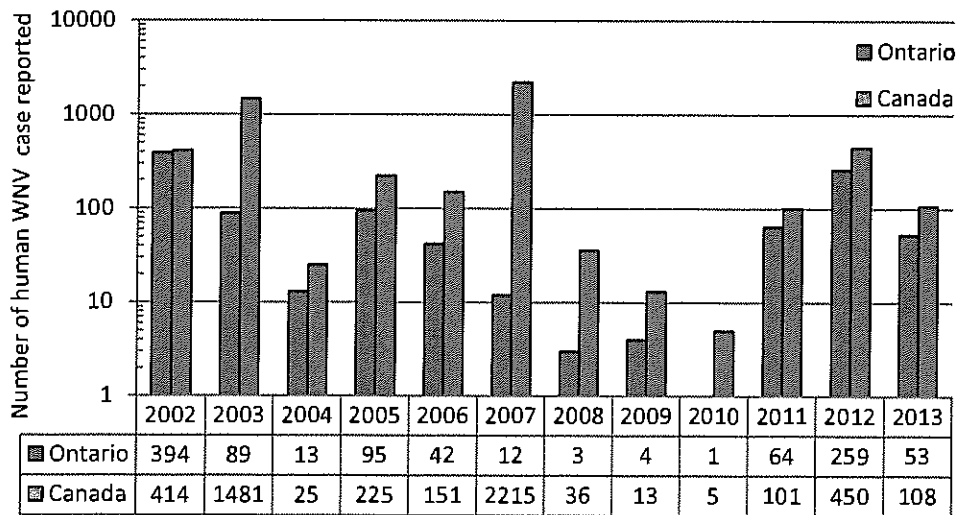
TRCA manages over 40,000 acres of properties, including natural and constructed wetlands, woodland pools, reservoirs, and ponds. These aquatic ecosystems have been considered "mosquito friendly" as a result of the permanent availability of standing water (Knight *et al.* 2003; Gingrich *et al.* 2006; Rey *et al.* 2006). The WNV Surveillance and Monitoring Program was initiated in 2003 as a measure of due diligence, and at the request of TRCA's Regional Public Health partners (Regions of Peel, York, Durham and the City of Toronto). Mosquito populations in selected natural habitats (collectively referred to as "wetlands" in this report) and stormwater management ponds (SWMPs) have been monitored throughout the summer months since the launch of the program. The data collected were used to identify sites of potential concern or vector mosquito "hot spots" and then follow up with appropriate management actions.

The objectives of the WNV Vector Mosquito Larval Monitoring and Surveillance Program are to reduce WNV risk on TRCA properties through the following approaches:

- **Monitoring and Surveillance:** to identify sites of WNV concern through larval mosquito monitoring, and take appropriate control measures if deemed necessary;
- **Public Education and Communication:** to respond to public inquiries on WNV related issues and address standing water complaints; and
- **Collaboration with Regional Health Units:** to participate in WNV advisory committees and share WNV related information and data.

In Canada, the number of human WNV cases fluctuates annually, driven by complex environmental and biological factors. An increase in WNV activity occurred in 2011 and it persisted into 2012, making 2012 the second worst outbreak year since 2002 in Ontario (Figure 1). In 2013, a total of 108 human cases were reported from 5 provinces: Ontario – 53, Quebec – 29, Alberta – 21, Saskatchewan – 6, and Manitoba – 2 (Public Health Agency of Canada, 2013). In the Greater Toronto Area (GTA), 19 human WNV cases were reported: City of Toronto – 11, Peel Region – 3, Durham Region – 2, Halton Region – 2, and York Region – 1 (Public Health Ontario, 2013).

Figure 1. Human West Nile virus cases in Ontario and Canada, 2002 - 2013



In 2013, Ontario's provincial and regional health agencies continued to monitor numbers of dead birds, adult mosquitoes, larval mosquitoes and human cases as part of the WNV surveillance programs. Adult mosquitoes monitoring is crucial for determining the immediate risk of humans contracting WNV. Larval mosquito surveillance provided information allowing Regional Public Health Units to eliminate/reduce mosquito larvae through larvicide application.

2. Public Education and Communication

One of TRCA's WNV management approaches is to focus on prevention through increasing public awareness and to deal with standing water concerns on TRCA properties.

2.1 Increasing public awareness of West Nile virus

In 2013, TRCA continued to increase public awareness of WNV by:

- sharing tips on personal protection against mosquito bites, reminding the public to perform good housekeeping practices, and making the latest WNV program annual

reports available on TRCA website (<http://trca.on.ca/protect/monitoring/west-nile-virus-monitoring-program.dot>);

- reminding staff the importance of personal protection against WNV, and providing the latest WNV monitoring program and regional WNV status; and
- displaying posters with WNV information in TRCA offices and Conservation Areas.

2.2 Standing Water Complaints

2.2.1 Standing Water Complaint Procedure

Complaints from the public or staff regarding standing water or mosquito activities were addressed according to TRCA's Standing Water Complaint Procedure (Appendix A). The procedure includes the following steps:

1. Acquired background information (location, name of the complainant, contact information, and the nature of the complaint).
2. Evaluated the location for its proximity to a routine WNV sampling station, and the sensitivity of the area.
3. TRCA's Finance and Business Services Division and Planning and Development Division were consulted to review property ownership, management agreements and land regulation information.
4. For non-TRCA property or property under management agreement, the respective regional public unit was notified. For TRCA properties, if deemed necessary, were monitored following the methods described in *Section 4*: mosquito larval collection and identification and WNV risk assessment.
5. When a potential hotspot was identified, and if larviciding was deemed appropriate, the following agencies were notified:
 - respective regional public health unit
 - Manager and Director at TRCA – for approval to proceed with the larvicide treatments
 - The Ministry of the Environment (MOE) – to obtain the permit for larviciding
 - The Ministry of Natural Resources (MNR) – to review the sensitivity of the area
6. Notified the complainant the results of the investigation.

2.2.2 Standing Water Complaint Sites

In 2013, TRCA staff dealt with one standing water concern. The pond located at the back of the Archetype House in Kortright Centre for Conservation was identified as a WNV vector mosquito hot spot. The pond was drained, re-filled and stocked with fish (koi). The original plan was to stock the pond with native fish species, however due to permitting issues, non-native koi were

stocked instead. The control method (fish stocking) appeared to be effective. No mosquito larvae were found during all the follow-up (four) visits.

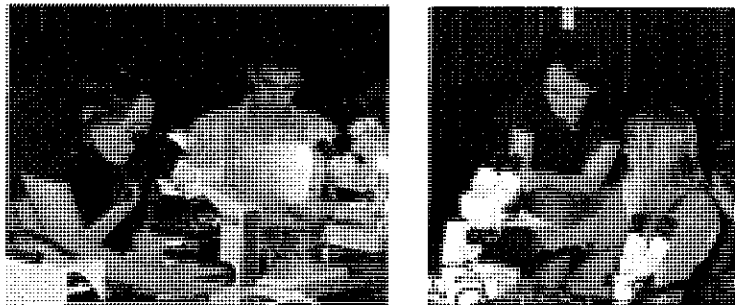
Three additional complaints were received, but these sites were not located on TRCA property. The files were forwarded to responsible public health unit.

3. Collaboration with Regional Health Units

The collaboration efforts with our regional public health partners involved notification of vector mosquito hot spots, and participation in advisory committees. TRCA also provided larval mosquito identification training to Durham Public Health staff. The participants of the training workshop learned to identify mosquito larvae commonly found in Southern Ontario.

In addition, an Order was issued to TRCA to assist with the implementation of control measures to reduce the number of mosquito larvae in the Heart Lake Wetland Complex in Brampton by the Medical Officer of Peel Regional under the *Health Protection and Promotion Act*, R.S.O. 1990, c. H.7.

Figure 2. Mosquito larval identification workshop hosted by TRCA



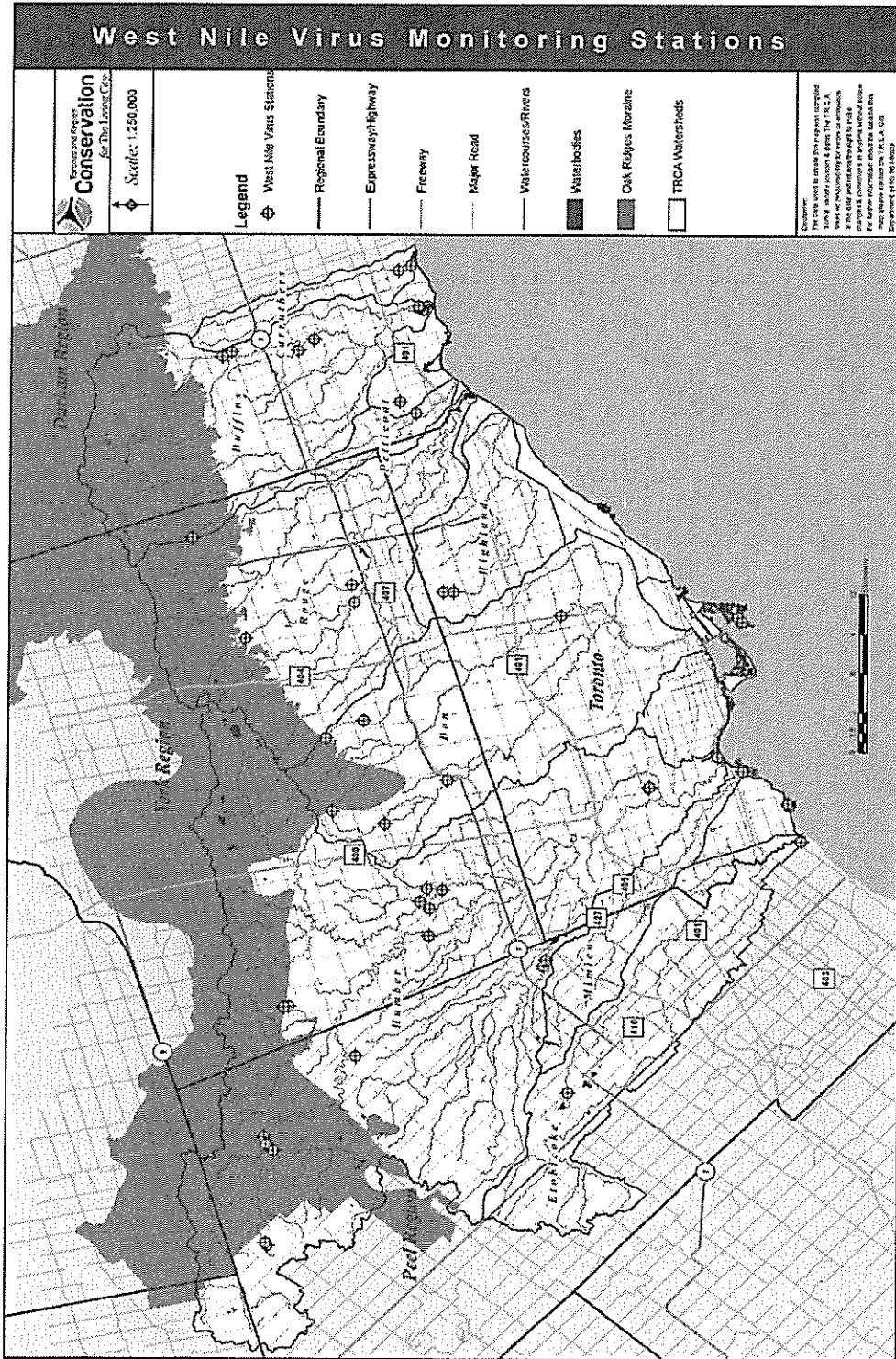
4. Larval Mosquito Monitoring

4.1 Methods

4.1.1 Monitoring Site Locations

The 2013 larval mosquito monitoring program began on June 3, and it covered 39 wetlands and 6 SWMPs across TRCA's jurisdiction (Figure 2). The monitoring stations remained unchanged from 2012. Additionally, the newly constructed Kortright Earth Rangers wetland became a routine monitoring station in 2013. Kortright Earth Rangers wetland was a concern for WNV, due to its proximity to the Earth Rangers building, which houses valued bird species as part of their education program (as animal ambassadors).

Figure 3. Location of West Nile virus monitoring sites, 2013



4.1.2 Collection and identification

Field technicians used several dipping techniques to ensure that all types of potential mosquito habitats were sampled (Figure 3). Samples were not collected during a rain event because raindrops disturb the water surface and consequently cause mosquito larvae to disperse (O'Malley, 1995).

Collected mosquito larvae were reared in rearing chambers until they reached maturity (fourth instar stage). The larvae were then preserved in 70% ethyl alcohol. Mosquito larvae were identified to species under a dissecting microscope using mosquito taxonomic keys (Wood *et al.*, 1979; Darsie and Ward, 2005). The larvae that died before reaching maturity were not identified.

Previously, TRCA collected *in situ* water quality data (pH, water temperature, conductivity, and dissolved oxygen) during site visits to help understand the correlation between water quality and mosquito larvae abundance. However, no conclusive correlations could be made. Consequently, *in situ* water quality data collection was terminated at the end of the 2012 field season. Without having to collect *in situ* water quality data, the field technicians were able to complete an additional (fifth) sampling event, compared to four sampling events in the previous years.

Figure 4. Field technician sampling with a standard mosquito dipper



4.1.3 WNV Risk Assessment

A WNV risk ranking was assessed for each site based on the number of vector larvae found in samples, according to the modified Wada's method of ranking (Wada, 1956):

- Sites with no vector larvae were ranked as "**Nil**" risk;
- Sites with <2 vector larvae per 10 dips were ranked as "**Low**" risk;
- Sites with 2 - 30 vector larvae per 10 dips were ranked as "**Moderate**" risk; and
- Sites with >31 vector larvae per 10 dips were ranked as "**High**" risk sites.

Risk ranking was applied to each vector species independently, instead of the cumulative number of vector larvae found at each site due to species variation in biology, host preference and the efficiency of each vector species to transmit WNV.

Sites with "high" risk ranking or vector hot spots were addressed, the respective regional health unit was informed and if warranted, the sites were treated with larvicide.

Take into consideration that when a site is ranked as high-risk, it does not imply that the virus is present at that site and poses immediate threat to the public. Mosquitoes only carry the virus after biting an infected bird. Mosquito larvae do not need blood meals thus do not carry the virus. The risk ranking merely indicates the presence of vector mosquito species which could potentially spread WNV to human populations, not the presence of the virus.

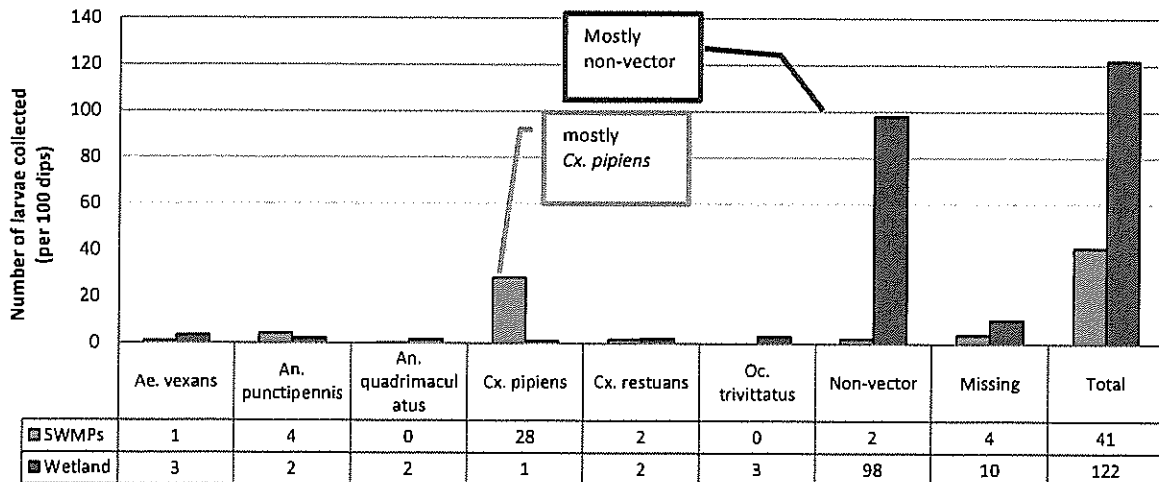
4.2 Results

4.2.1 Mosquito composition and West Nile virus Risk Assessment

In total, 7146 mosquito larvae representing 11 species were collected in 2013. Larval mortality during the rearing process remained low at 8%. Mosquito larvae that died prematurely were not identified to species, thus excluded from the analyses and risk assessment in the following sections. The identified larvae included 6650 larvae from wetlands and 496 larvae from SWMPs.

Almost 80% of our sampling sites are wetlands. Therefore, a standardized measure of effort (i.e. larvae collected per 100 dips) was established to compare the mosquito larvae compositions between wetlands and SWMPs. Overall, mosquito larvae were more abundant in wetlands, 122 larvae were collected per 100 dips from wetlands compared to only 41 larvae from SWMPs (Figure 5). In wetlands, 13 vector mosquito larvae were collected per 100 dips; in SWMPs, 35 larvae, including 28 *Culex pipiens* larvae, were collected with the same amount of effort. This finding, most of the vector mosquito larvae inhabited SWMPs, is consistent with the results from previous years.

Figure 5. Number of Larvae collected per 100 dips, 2013



The species collected included four non-vector species (*Culex territans*, *Psorophora ferox*, *Anopheles earlei*, and *Uranotaenia sapphirina*) and seven WNV vector species (*Aedes vexans*, *Anopheles punctipennis*, *Anopheles quadrimaculatus*, *Culex pipiens*, *Culex restuans*, *Culex salinarius*, and *Ochlerotatus trivittatus*). The most widespread species was *Culex territans*, which inhabited 38 of the 45 (84%) monitoring sites. Two key WNV vectors, *Culex pipiens* and *Culex restuans*, were found at 15 (33%) and 8 (18%) of the sampled sites respectively.

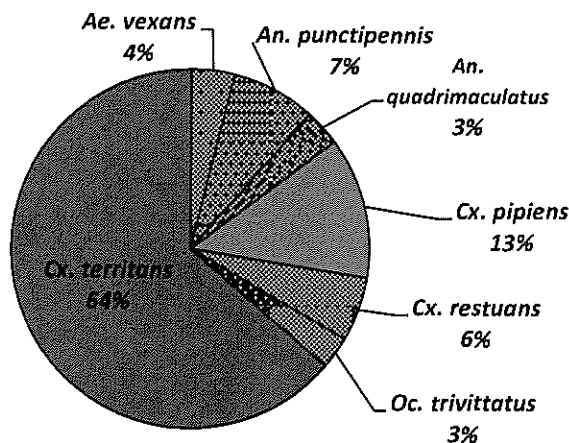
Mosquito monitoring results by site and by Region are listed in Appendix B-1 to B-4.

4.2.2 Wetlands

In total, 6094 mosquito larvae were identified to species for 39 wetlands. Similar to the findings from previous years, non-vector mosquito species, namely *Culex territans* dominated wetland habitats (Figure 5). In total, 11 mosquito species were collected in wetlands. The predominant non-vector species was *Culex territans* (64%), and the predominant vector species was *Culex pipiens* (13%) (Figure 5). As in previous years, higher mosquito diversity was observed in wetlands compared to SWMPs. The finding could be attributed to the facts that more wetland sites were sampled, and wetlands generally provide more diverse habitat.

Figure 6. Mosquito species composition in wetlands in 2013

(non-vector species are indicated in green and vector species are indicated in red)



Note: *Cx. salinarius*, *Ps. ferox*, *Ur. sapphirina*, and *An. earlei* collectively represented 0.25% of the mosquito collected, therefore were excluded from the figure.

Monitoring results showed that most wetlands posed minimal risk for WNV vector mosquitoes. All monitored Conservation Areas (Albion Hills, Altona Forest, Boyd, Bruce's Mill, Claireville, Glen Haffy, Heart Lake, and Kortright Centre) had very limited number of vector mosquito larvae present. Only 13 *Anopheles quadrimaculatus* were collected at the new Earth Rangers Wetland site throughout the season in 2013.

The environmentally friendly larvicide, *Bacillus thuringiensis israelensis* (Bti) was used to treat the hot spots identified. Bti is a bacterium found naturally in soils, and since 1982, it has been used successfully worldwide as a biological pest control agent to combat mosquitoes and black flies (Health Canada 2011). The pest control contractor displayed signs (Figure 6) to notify the public prior and during the larvicide treatments. The four identified hot spots were:

1) Grenadier Pond in High Park

In 2011 and 2012, large numbers of *Culex pipiens* were found here. Once again, Grenadier Pond was identified as a hot spot for *Culex pipiens* on June 27, 2013. Toronto Public Health was informed of this finding. The site was treated with larvicide after the Public Health staff visited the station and determined that treatment was necessary. The larvicide treatment was effective, no mosquitoes were found during the subsequent sampling event (July 15). The site continued to be monitored and treated until the end of the summer season. Later in the season, mosquito larvae re-appeared in the pond, however not in large numbers.

Figure 7. Larvicide treatment notification display



2) Topham Pond in Eglinton Flats

Topham Pond was identified as a hot spot for *Culex pipiens* on July 29, 2013. Toronto Public Health staff was informed, and the pond was treated with larvicide after the City staff investigated the site. During the subsequent visit (August 14), the number of vector mosquito larvae was reduced from 171 to 61, thus the risk ranking was lowered to “Moderate”. Toronto Public Health staff indicated that the treatment was on-going and would be continued until the end of the season.

3) Goldfish Pond in Tommy Thompson Park

Goldfish Pond was identified as a hot spot for *Culex pipiens* on August 13, 2013. Goldfish Pond is known for its environmental sensitivity (presence of species at risk); although larvicide treatments were undertaken in accordance with the City of Toronto Public Health policies and TRCA’s standing water procedures in this case. Field technicians were able to direct the City staff to the spot where high densities of vector mosquito larvae were found to minimize the use of pesticide at this site. Biologists at the Ministry of Natural Resources were informed prior to treatment.

4) Unnamed wetland in Vaughan

In 2009, a standing water complaint was filed about a floodplain in Vaughan near Highway 27 and Major Mackenzie Drive. Since then, it has been a routine monitoring station. On July

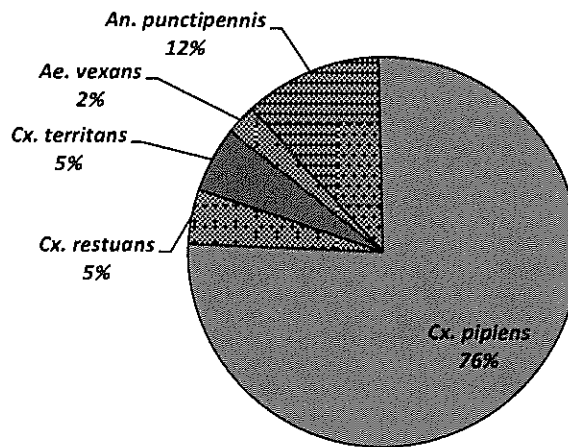
8, the GTA region received record rainfall of 126 mm in 2 hours (Environment Canada, 2013). The downpour caused major flooding in the region. Because this site had been a concern after major storm events in the past, it was visited soon after the storm on July 10. The results showed that it had become a hot spot for flood water vector mosquitoes such as *Aedes vexans* (n=167) and *Ochlerotatus trivittatus* (n=163) just two days after the storm. York Region Public Health Unit was informed and took immediate action. The site was treated on July 11. The treatment was effective; only three mosquito larvae were found when the site was re-visited on July 19.

4.2.3 Stormwater Management Ponds

From the 6 SWMP monitoring sites, 450 mosquito larvae were identified, which consisted of 426 (95%) vector mosquito species larvae and 24 (5%) non-vector (Figure 7). The vector species to non-vector species ratio observed was similar to previous years. The number of larvae collected dropped from 1317 in 2012 to 496 in 2013. This was likely due to the fact that L'Amoreaux Park North Pond has been a hot spot for the past number of years and the City of Toronto Public Health took proactive approach and started larvicide treatment at this site early in the season.

Figure 8. Mosquito species composition in stormwater management ponds, 2013.

The vector species were indicated in red and the non-vector species was in green



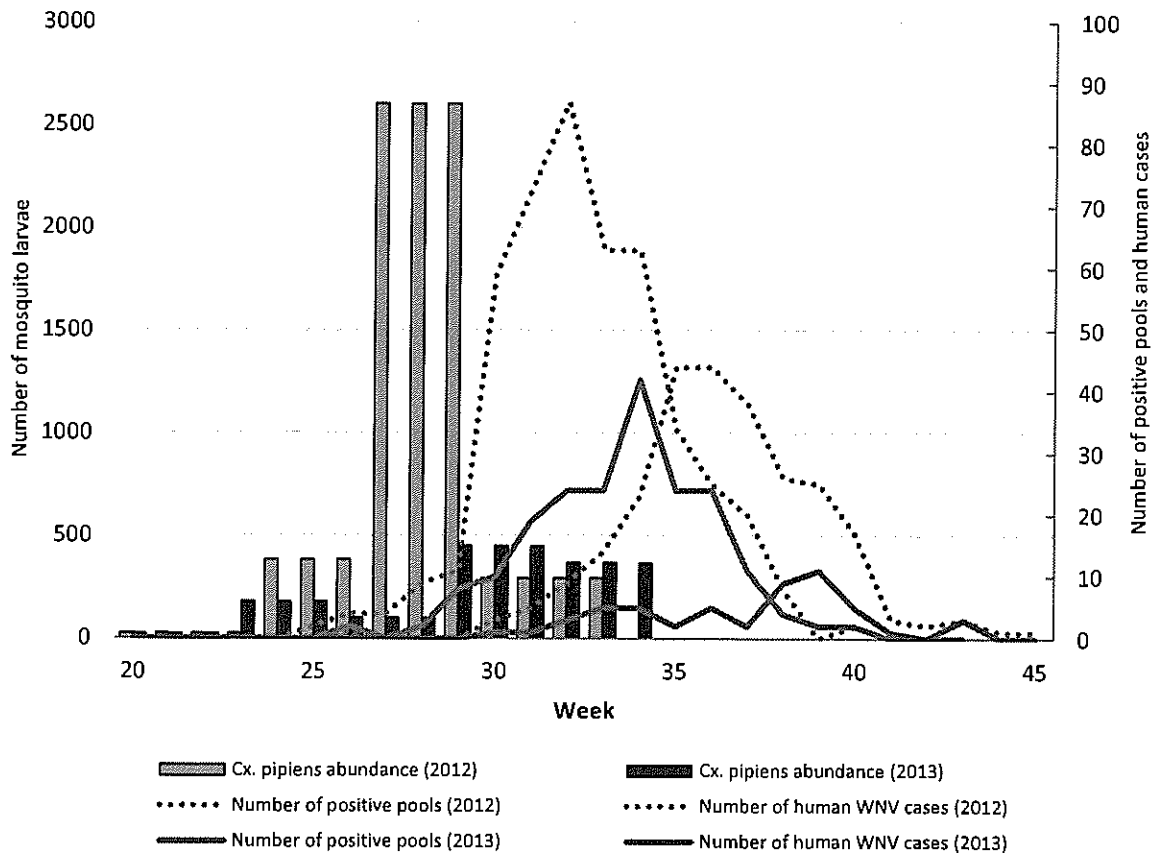
4.3 Vector Mosquito Larvae Abundance and the Spread of WNV

Culex pipiens and *Culex restuans* are thought to be responsible for 80% of human WNV infection in the north-eastern United States (Kilpatrick et al. 2005). Jurisdictionally, *Culex pipiens* is the dominant vector species. In 2012, *Culex pipiens* abundance peaked in Week 27-29, subsequently the numbers of WNV positive mosquito pools started to increase. Three weeks later, the increase in human WNV cases coincided with the highest numbers of positive mosquito pools (Figure 8). A *mosquito pool* is a collection of mosquitoes (usually about 50) of any particular species that are likely to carry a virus. A WNV positive mosquito pool hence is a pool that has been tested positive for the WNV in the lab. Figure 8 showed that larvae surveillance is not only used to detect location, species, and abundance of mosquitoes to

enable timely management, but also vital in predicting adult mosquito emergence and the potential of human contacting the virus.

In 2013, perhaps as a result of the cooler summer temperature, *Culex pipiens* abundance peaked slightly later in the week of 29-31. This was also followed by the steady increase of the WNV positive pools. Due to the larvicide applications in selected sites, “*Culex pipiens* abundance” numbers in the chart represents only a fraction of the potential numbers. Figure 8 shows that the degree and timing of human WNV outbreak is closely related to the number of vector larvae and the number of positive pools.

Figure 9. Numbers of vector larvae, positive pools, and human cases, 2013



5. Conclusions

The results from the 2013 program supported the findings from the previous TRCA WNV mosquito larval studies. Generally, functioning wetlands do not pose threats of WNV due to the low numbers of vector larvae present. No vector mosquito hot spots were found in surveyed Conservation Areas (Albion Hills, Altona Forest, Boyd, Bruce's Mill, Claireville, Glen Haffy, Heart Lake, and Kortright Centre). On the contrary, the majority of the larvae collected in SWMPs were WNV vector species. The storm on July 8, 2013 caused a surge in number of flood water vector mosquitoes collected in the region. The eggs of flood water mosquito species can hatch and start developing just a few days after a flood. Consequently, all sites with flood potential should be monitored closely after major storm events.

Compared to 2012, the cooler summer might have slowed the development of *Culex pipiens* larvae. Five hot spots were detected and treated through TRCA's larval mosquito monitoring program. The ability to detect hot spots, and subsequently take appropriate control measures highlighted the importance of regular and continuous seasonal monitoring of wetlands and SWMPs. TRCA addressed one standing water concerns associated with TRCA properties as per TRCA's Standing Water Complaints Procedure.

Collaboration with Regional Public Health units and TRCA's management team is crucial in managing WNV vector hot spots in a timely manner on TRCA properties. In 2013, the City of Toronto Public Health and York Public Health assisted TRCA in treating identified WNV hot spots identified. Jurisdictionally, *Culex pipiens* abundance were the highest in the City of Toronto compared to the Regions of Peel, Durham, and York. The number of WNV positive mosquito pools and the number of human cases showed the same trend. Data from each region should be further analysed and compared. TRCA's data are valuable for the regional public Health partners to use as a tool in predicting the emergence of vector species adult mosquitoes and the WNV risk in the human population.

More analyses on the data also have to be done to evaluate how much a small scale (i.e. 45 monitoring sites) larval mosquito monitoring program can contribute to research. For example, contributing to the development of a model (by LAMPS – York University), which could be capable of predicting the timing and intensity of the spread of WNV into the human populations in a particular year.

6. References

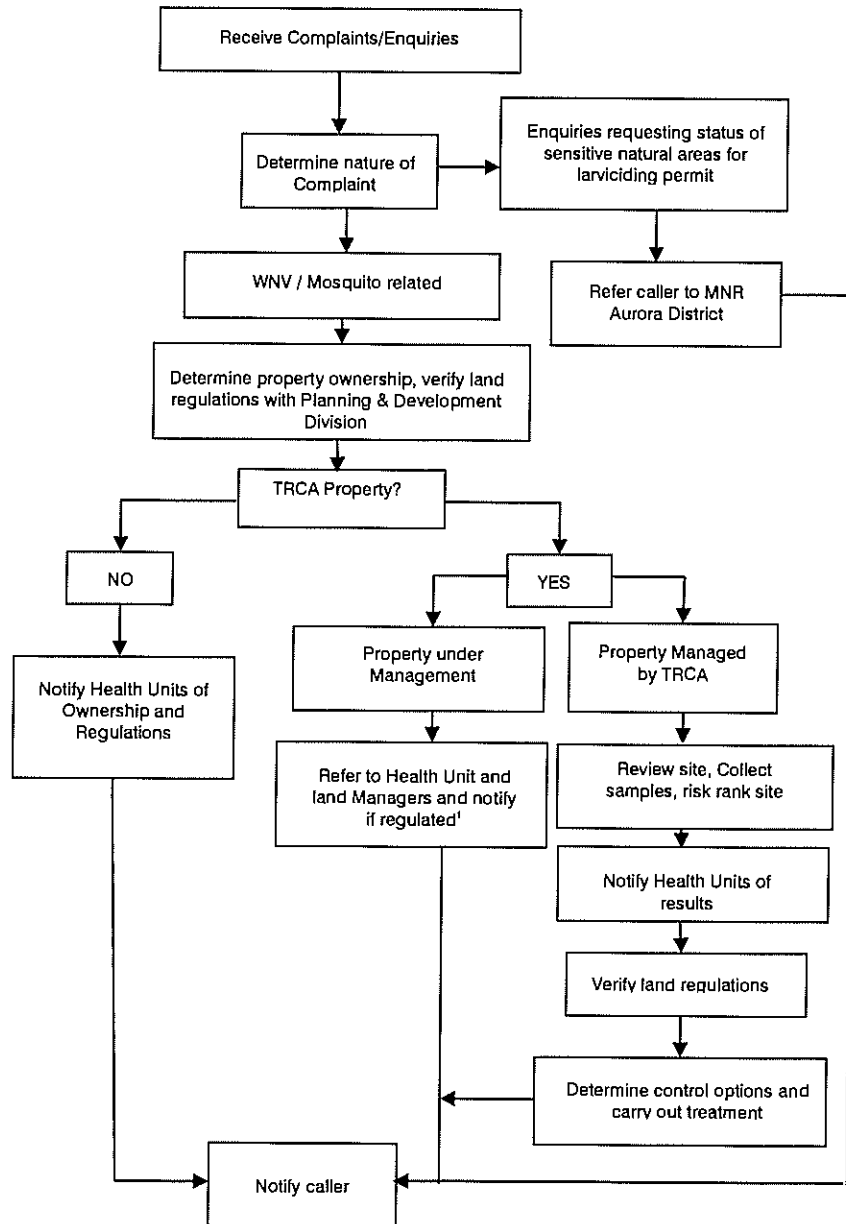
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C19.52

Appendices

C 19.53

Appendix A. TRCA Standing Water Complaint Procedure



C 19.54

Appendix B-1 Monitoring and Risk Assessment Results in Durham Region - 2013

Sites with no vector larvae were ranked as "Nil" risk; sites with <2 vector larvae per 10 dips were ranked as "Low" risk; sites with 2 - 30 vector larvae per 10 dips were ranked as "Moderate" risk; and sites with >31 vector larvae per 10 dips were ranked as "High" risk.

Site	Sampling Event	<i>Ae. vexans</i>	<i>An. punctipennis</i>	<i>An. quadrimaculatus</i>	<i>Cx. pipiens</i>	<i>Cx. restuans</i>	<i>Oc. trivittatus</i>
Altona Forest	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Low	Nil	Nil
	4	Nil	Moderate	Low	Nil	Nil	Nil
	5	Nil	Moderate	Nil	Nil	Nil	Nil
Carruthers Swamp Complex	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Moderate	Moderate	Nil	Low	Nil	Nil
Claremont Wetland-1	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Low	Low	Nil	Nil	Nil
	4	Nil	Moderate	Low	Low	Nil	Nil
	5	Nil	Moderate	Nil	Nil	Nil	Nil
Claremont Wetland-2	1	Nil	Low	Low	Nil	Nil	Nil
	2	Nil	Low	Low	Nil	Nil	Nil
	3	Nil	Low	Low	Nil	Nil	Nil
	4	Nil	Low	Moderate	Nil	Nil	Nil
	5	Nil	Low	Moderate	Nil	Nil	Nil
Frenchman's Bay Promenade	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
Greenwood Marsh	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
Greenwood Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Low	Low	Nil	Nil	Nil
Lower Duffins	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil

C19.55

Appendix B-2 Monitoring and Risk Assessment Results in Peel Region - 2013

Sites with no vector larvae were ranked as "Nil" risk; sites with <2 vector larvae per 10 dips were ranked as "Low" risk; sites with 2 - 30 vector larvae per 10 dips were ranked as "Moderate" risk; and sites with >31 vector larvae per 10 dips were ranked as "High" risk.

Site	Sampling Event	<i>Ae. vexans</i>	<i>An. punctipennis</i>	<i>An. quadrimaculatus</i>	<i>Cx. pipiens</i>	<i>Cx. restuans</i>	<i>Oc. trivittatus</i>
Abblon Hills Pond-1	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Abblon Hills Pond-2	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Abblon Hills Pond-4	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Moderate	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Moderate	Low	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Claireville Wetland-1	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Moderate	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
Claireville Wetland-2	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Moderate	Moderate	Nil	Nil	Nil	Low
	3	Nil	Moderate	Nil	Low	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Glen Haffy Trout Pond-1	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Moderate	Low	Nil	Nil	Nil
	3	Nil	Low	Low	Nil	Nil	Nil
	4	Nil	Moderate	Moderate	Nil	Nil	Nil
	5	Nil	Moderate	Low	Nil	Nil	Nil
Glen Haffy Trout Pond-2	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Low	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Moderate	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Heart Lake	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
Marie Curtis	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Low	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
SWMP-174	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Low	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Moderate	Low	Nil	Nil	Nil

C19.56

Appendix B-3 Monitoring and Risk Assessment Results in Toronto - 2013

Sites with no vector larvae were ranked as "Nil" risk; sites with <2 vector larvae per 10 dips were ranked as "Low" risk; sites with 2 - 30 vector larvae per 10 dips were ranked as "Moderate" risk; and sites with >31 vector larvae per 10 dips were ranked as "High" risk.

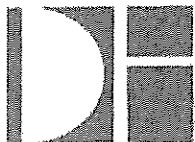
Site	Sampling Event	<i>Ae. vexans</i>	<i>An. punctipennis</i>	<i>An. quadrimaculatus</i>	<i>Cx. pipiens</i>	<i>Cx. restuans</i>	<i>Oc. trivittatus</i>
Col. Samuel Smith Main Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Col. Samuel Smith Mini Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Moderate	Low	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Low	Nil	Nil
	5	Nil	Nil	Nil	Low	Nil	Nil
High Park Grenadier Pond	1	Nil	Nil	Nil	Moderate	Moderate	Nil
	2	Nil	Nil	Low	High	Moderate	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Moderate	Moderate	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
L'Amoreaux North Pond	1	Low	Nil	Nil	Nil	Low	Nil
	2	Nil	Nil	Nil	Nil	Low	Nil
	3	Low	Nil	Nil	Moderate	Moderate	Nil
	4	Low	Nil	Nil	High	Low	Nil
	5	Nil	Low	Nil	Moderate	Low	Nil
L'Amoreaux South Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Milne Hollow	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
Mimico Amphibian Pond	1	Nil	Nil	Nil	Nil	Low	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Low	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Topham Pond	1	Nil	Nil	Nil	Moderate	BB	Nil
	2	Nil	Nil	Nil	Moderate	Low	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	High	Moderate	Nil
	5	Nil	Nil	Nil	Moderate	Moderate	Nil
TTP Goldfish Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Moderate	Moderate	Nil	Nil
	5	Nil	Low	Nil	High	Nil	Nil
TTP Tri-Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Low	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Woodland Pond	1	Nil	Nil	Nil	Low	Moderate	Nil
	2	Nil	Nil	Nil	Moderate	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Low	Low	Nil
	5	Nil	Low	Nil	Moderate	Nil	Nil

C 19.57

Appendix B-4 Monitoring and Risk Assessment Results in York Region - 2013

Sites with no vector larvae were ranked as "Nil" risk; sites with <2 vector larvae per 10 dips were ranked as "Low" risk; sites with 2 - 30 vector larvae per 10 dips were ranked as "Moderate" risk; and sites with >31 vector larvae per 10 dips were ranked as "High" risk.

Site	Sampling Event	<i>Ae. vexans</i>	<i>An. punctipennis</i>	<i>An. quadrimaculatus</i>	<i>Cx. pipiens</i>	<i>Cx. restuans</i>	<i>Oc. trivittatus</i>
Boyd Conservation Area	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Low	Nil	Nil
	3	Nil	Low	Nil	Low	Nil	Nil
	4	Nil	Low	Nil	Low	Nil	Nil
	5	Nil	Moderate	Nil	Moderate	Nil	Nil
Bruce's Mill	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Low	Nil	Nil	Nil	Nil
	3	Nil	Nil	Low	Low	Nil	Nil
	4	Nil	Low	Low	Low	Nil	Nil
	5	Nil	Low	Low	Nil	Nil	Nil
Cold Creek Pond	1	Nil	Low	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Low	Low	Nil	Nil	Nil
	4	Nil	Low	Low	Nil	Nil	Nil
	5	Nil	Moderate	Low	Nil	Nil	Nil
Earth Rangers	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Low	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Moderate	Nil	Nil	Nil
Granger Wetland South	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Low	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Low	Low	Nil	Nil	Nil
Keffer Marsh	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Low	Nil	Nil	Nil
	4	Nil	Low	Low	Nil	Nil	Nil
	5	Nil	Low	Low	Nil	Nil	Nil
Killian Lamar	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
Kortright Centre Marsh	1	Nil	Low	Moderate	Nil	Nil	Nil
	2	Nil	Low	Low	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Moderate	Nil	Nil	Nil	Nil
Stouffville Reservoir	1	Nil	Nil	Low	Nil	Nil	Nil
	2	Nil	Nil	Low	Nil	Nil	Nil
	3	Nil	Low	Low	Nil	Nil	Nil
	4	Nil	Nil	Nil	Nil	Nil	Nil
	5	Nil	Low	Moderate	Nil	Nil	Nil
Toogood Pond	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Low	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Nil	Low	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
un-named wetland - Vaughan	1	Nil	Moderate	Nil	Nil	Moderate	Nil
	2	Low	Low	Nil	Moderate	Moderate	Nil
	3	High	Low	Nil	Moderate	Moderate	High
	4	Moderate	Low	Nil	Nil	Nil	Moderate
	5	Nil	Nil	Nil	Nil	Nil	Nil
Un-name Wetland 1	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
un-named Wetland 2	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Low	Low	Nil	Nil	Nil
	5	Nil	Low	Nil	Nil	Nil	Nil
SWMP-88.2	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Low	Low	Nil
	4	Nil	Nil	Low	Low	Low	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil
SWMP-139	1	Nil	Nil	Nil	Nil	Nil	Nil
	2	Nil	Nil	Nil	Nil	Nil	Nil
	3	Nil	Nil	Nil	Nil	Nil	Nil
	4	Nil	Low	Nil	Nil	Nil	Nil
	5	Nil	Nil	Nil	Nil	Nil	Nil



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June 17, 2014

By E-Mail Only to jeffrey.abrams@vaughan.ca

Mr. Jeffrey Abrams, City Clerk
City of Vaughan
City Hall, Level 100
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Dear Mr. Abrams:

**Re: City of Vaughan Proposed Natural Heritage Network Study and amendments to the Vaughan Official Plan 2010
Written Submissions Pursuant to s. 17(20) of the Planning Act
Block 27 Landowners Group Inc.**

As you are aware, we are Counsel to Block 27 Landowners Group Inc. ("Block 27"). Our client's lands are bounded by Teston Road on the south, Kirby Sideroad on the north, Keele Street on the east and Jane Street on the west.

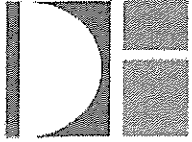
The purpose of this letter is to advise the City of Vaughan (the "City") of Block 27's concerns regarding the Proposed Natural Heritage Network Study (the "Proposed NHN") and amendments to the Vaughan Official Plan 2010 (the "Proposed OPA").

Our client is concerned that the new criteria in the Proposed OPA (Watercourses – s. 7.4 and Waterbodies – s. 7.5) create an inflexible regime reaching beyond the requirements of the Toronto and Region Conservation authority (TRCA) and contradicts the existing VOP 2010 policies. To this end, Block 27 questions the need for 30-metre wide vegetation protection zones being added to either side of the high water mark of *all* watercourses.

Block 27 also disputes the City's "precautionary" approach which identifies all watercourses as Core Features until they have been assessed in the field and confirmed by the City and TRCA. As the City is aware, it is commonly accepted that the only way to determine whether a watercourse should be considered "core"

Please refer to: **Jason Lewis**
e-mail: jasonl@davieshowe.com
direct line: 416.263.4521
File No. 702275

C 20	
COMMUNICATION	
CW (PH)	JUNE 17/14
ITEM -	6



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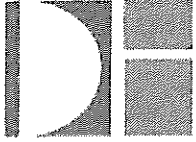
is through field investigation. While the City's consultants have performed field investigations on the Block 27 lands, the designation of several water features as Core Features on Schedule 2 is not supported by their raw data. Block 27 would suggest that this approach is prejudicial, not precautionary.

Block 27 is also concerned that much of the information that it provided to the City as part of the NHN exercise has not been considered. For example, Block 27 agreed to provide the City with the results of its Headwater Drainage Feature assessment prepared by Beacon Environmental in 2013 (the "HDF Assessment") with the understanding that the HDF Assessment would inform the City's determination of watercourse Core Features. Our examination of revised Schedule 2, shows that the data in the HDF Assessment was not faithfully incorporated into the City's final determination even though the City's data was generally consistent with Beacon's data.

The Proposed NHN recommends that Core Features include "all natural waterbodies" and that a 30m vegetation protection zone (VPZ) be added to the high water mark. Although waterbodies are not defined or included in VOP 2010, our interpretation is that farm ponds with limited ecological function would be excluded from this designation. Nevertheless, there are two dug farm ponds on Block 27 which are mapped as Core Features with 30m VPZ's surrounding them resulting in situations where the VPZ is much larger than the ponds themselves.

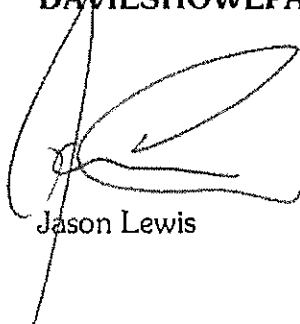
Finally, there are two small areas shown as "Core" on the west side of Block 27 that do not appear to correspond to the presence of any actual features. There is also no information depicted in Schedules 2a, 2b, or 2c to indicate what these areas are intended to represent. These appear to be erroneously mapped and should be removed. To this end, we suggest that further review of the Schedules is required before they are adopted by the City.

We trust this is satisfactory. Please do not hesitate in contacting us should you require anything further.



Davies
Howe
Partners
LLP

Yours truly,
DAVIESHOWEPARTNERSLLP



Jason Lewis

copy: Block 27 Landowners
John MacKenzie
Grant Uyeyma
Tony Iacobelli

Britto, John

From: Antony Niro <antony.niro@gmail.com>
Sent: Tuesday, June 17, 2014 1:22 PM
To: Shefman, Alan; Rosati, Gino; Iafrate, Marilyn; Bevilacqua, Maurizio; Di Biase, Michael; DeFrancesca, Rosanna; Racco, Sandra; Schulte, Deb; Carella, Tony
Cc: Clerks@vaughan.ca; York Region Clerk; Steven Del Duca; Gila Martow; Bruce MacGregor
Subject: Committee of the Whole (Public Hearing) - June 17, 2014 - Item 6 - Natural Heritage Network (NHN) - Transportation Infrastructure

C 21
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

Mayor and Members of Council, with regards to the **Natural Heritage Network and policy**, as a concerned citizen I'm asking council and Vaughan staff to ensure that through the implementation of the policies and procedures to manage and preserve Vaughans precious Natural Heritage that in no way will these policies interfere with current policies to implement transportation infrastructure.

As a city, we are all aware transportation infrastructure is amongst the highest priority of Vaughan residents that needs improvement. Improvement to transportation will have a direct impact on resident and business quality of life. When Vaughan council also decides that transportation is a priority, and comes up with either city initiated transportation infrastructure improvements or regional initiated transportation infrastructure improvements, **we as a city need the flexibility to act quickly to implement transportation infrastructure improvements.**

The policies and procedures relating to the Natural Heritage Network must continue to allow transportation infrastructure improvements to be a priority and not hinder their progress in any way.

The Natural Heritage Network is a key priority, and so is transportation infrastructure, there is a way to integrate the policies for infrastructure with the policies for preservation of Natural Heritage. I'm asking we make both a priority and not allow one to hinder the other.

-Antony.

Resident of Maple

Antony Niro, P.Eng.
416-846-6476

HUMPHRIES PLANNING GROUP INC.

June 17, 2014
HPGI File: 0449

C 22
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L4A 1T1

Attn: Jeffrey Abrams, City Clerk

Re: Natural Heritage Study, Phase 2-4 Report - Comments
June 17, 2014 Public Hearing - Item 6
City File - 25.5.4

Humphries Planning Group Inc. is advising that technical comments will be forthcoming relating to the Natural Heritage Network (NHN) Study Draft Phase 2-4 Report, dated May 2014, on behalf of the Highway 400 Landowners Group (Blocks 35 and 34W).

As a general comment regarding the Proposed NHN, the Landowners are concerned that it creates an inflexible regime through the imposition of 30-metre wide vegetation protection zones on either side of the high water mark of all watercourses.

The Landowners also take issue with the City's precautionary approach which identifies all watercourses as Core Features notwithstanding that they have not been assessed in the field and confirmed by the City and the Toronto and Region Conservation Authority (TRCA).

It has been noted throughout the NHN Study process that the outcome of the Study applies to new community areas and will inform new Secondary Plans. Blocks 35 and 34W is a Secondary Plan approved area through Official Plan Amendment 637 (OPA 637). As such, these lands are not subject to the outcome of the NHN Study and the block planning process for these lands will be reviewed based on OPA 637 and OPA 450 policies.

This is recognized in OPA 637, which amended OPA 450 by adding a new Section 2.3.2.10 - Highway 400 North Employment Area Environmental Planning Framework, which states (in part):

"Planning for new development and redevelopment in the Highway 400 North Employment Areas on Schedule 2D, with respect to the environment, shall be carried out in accordance with the policies in Section 2.3.2, recognizing the following:

216 Chrislea Road
Suite 103
Vaughan, ON
L4L 8S5

T: 905-264-7678
F: 905-264-8073

www.humphriesplanning.com

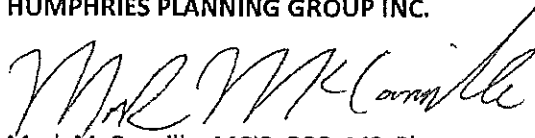
~ Do Something Good Everyday! ~

vii) The limits of all key natural heritage and key hydraulic features and the precise boundaries of the Greenbelt Natural System Area will be confirmed through the Block Plan process."

Further to the above, we are requesting formal Notice of any amendments to the Vaughan Official Plan pursuant to subsection 17 (23) of the *Planning Act* resulting from this study.

Should you have any questions, please contact the undersigned at ext. 246.

Yours truly,
HUMPHRIES PLANNING GROUP INC.

A handwritten signature in black ink, appearing to read 'Mark McConville', written over a light blue horizontal line.

Mark McConville, MCIP, RPP, MScPI
Intermediate Planner

cc: Tony Iacobelli, Environmental Planner
John Mackenzie, Commissioner of Planning
400 Landowners Group Participants



**WESTON
CONSULTING**
planning + urban design

C23.1

<u>C 23</u> COMMUNICATION CW (PH) - <u>JUNE 17/14</u> ITEM - <u>6</u>

Mayor and Members of Council
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

June 17, 2014
File 5873-1

Dear Mayor and Members of Council,

**RE: Phase 2 – 4 Natural Heritage Network Study
11211 Weston Road, City of Vaughan**

Weston Consulting is the planning consultant for the owner of the property municipality described as 11211 Weston Road, in the City of Vaughan (the 'subject property').

The subject property is located on the east side of Weston Road, between Kirby Road and Teston Road. It is approximately 25 acres in area. The eastern portion of the subject property (approximately 19.5 acres) is located within the Protected Countryside of the Greenbelt. The western portion of the Subject Property (approximately 5.5 acres) is located outside of the Greenbelt.

Based on our review of the 'Phase 2 – 4 Natural Heritage Network Report' (NHN Report), dated May 2014, the portion of the property outside of the Greenbelt is not identified as 'Core Features' under the Natural Heritage Network. However, it appears that the new Schedules as presented in Figure 7 & 8 of the NHN Report, do identify the following:

1. The designation of "Woodlands" on or near the subject property as illustrated on the proposed Schedule 2B attached to the NHN Study Report; and
2. The designation of "SWH Amphibian Breeding Habitat – Woodlands" on or near the subject property in accordance with Schedule 2C attached to the NHN Study Report.

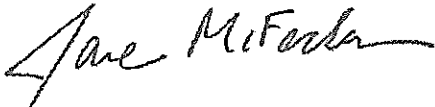
With regard to these designations, please be advised that the owners of the subject property have previously submitted an appeal of the new Official Plan to the Ontario Municipal Board ("the Board") on the basis that certain land use schedules were not consistent with OPA 637. We note that the inconsistencies included Schedule 2, the "Natural Heritage Network", which identified a "Core Feature" on a portion of the Subject Property that is outside of the Greenbelt. Furthermore, the owners of the subject property commissioned Dillon Environmental to undertake a review of the wooded area located at the subject property in further support of the appeal. It was Dillon's findings that the wooded area outside of the Greenbelt is not dense enough to constitute a Woodland nor consistent with the intention of the York Region Official Plan and the City's (proposed) Official Plan to exclude plantations that are established for the purpose of producing Christmas trees from being classified as Woodlands.

During the course of the appeal, City Staff confirmed that the identified discrepancies between OPA 637 and the new Official Plan were the result of mapping errors in the latter. In order to address the concerns and to make the new official plan consistent with OPA 637, the City, the TRCA and the property owner agreed to several modifications which removed the "Natural Areas" designation from Schedule 1, 2 and 13. These modifications has the effect of restoring the Low-Rise Residential designation and removing environmental designation and overlays of the western portion of the Subject Property, outside of the Greenbelt (Minutes of Settlement Attached).

In regards to the City's NHN Study, comments were previously submitted to the City on behalf of the owner of the subject property with respect to Phase 1 of the Study on January 15, 2014. It appears that no consideration for previous comments has been included in the Phase 2-4 Study nor the Staff Report dated June 17, 2014. We formally request that you remove the designations on Schedule 2B and 2C identified on the subject property outside of the Greenbelt in accordance with OPA 637 and the recently approved modifications to Schedule 1, 2, and 13 of the new Official Plan (attached to the Minutes of Settlement).

Please add me to your consultation list and provide me with any notice of decision related to this matter. Please contact me at extension 225 if you have any further questions.

Yours truly,
Weston Consulting
Per:



Jane McFarlane, MES (PI), MCIP, RPP
Senior Planner

c. Amber Stewart, Amber Stewart Law
Clients

C 23.3

OMB Case No. PL111184

ONTARIO MUNICIPAL BOARD
Commission des affaires municipales de l'Ontario

IN THE MATTER OF s. 17(40) of the *Planning Act*, R.S.O. 1990, c. P. 13, as amended

Appellants: Ronni Rosenberg (No. 37) (See Attachment 1 for list of other Appellants)
Subject: Failure of the Regional Municipality of York to announce a decision respecting the proposed new Official Plan for the City of Vaughan
Municipality: City of Vaughan
OMB Case No.: PL111184
OMB File No.: PL111184

MINUTES OF SETTLEMENT

BETWEEN:

RONNI ROSENBERG

("the Appellant")

- and -

THE CORPORATION OF THE CITY OF VAUGHAN

("the City")

- and -

TORONTO AND REGION CONSERVATION AUTHORITY

("TRCA")

WHEREAS the Appellant is an owner of the property municipally described as 11211 Weston Road, and legally described as Parts of Lot 28 and 29, Concession 5, in the City ("the Subject Property");

AND WHEREAS the eastern portion of the Subject Property (approximately 19.5 acres) is located within the Protected Countryside of the Greenbelt, and regulated by the *Greenbelt Plan, 2005*, and the western portion of the Subject Property (approximately 5.5 acres) is located outside of the Greenbelt.

AND WHEREAS the western portion of the Subject Property (located outside of the Greenbelt) is designated as "*Low Rise Residential*" pursuant to Official Plan Amendment

C 23.4

OMB Case No. PL111184

No. 637 ("OPA 637"), which was adopted by the City in 2010 and approved by the Ontario Municipal Board ("the Board") on August 3, 2011;

AND WHEREAS the City adopted the City of Vaughan Official Plan, 2010 ("the New OP") on September 7, 2010, which was forwarded to the Regional Municipality of York for approval;

AND WHEREAS certain schedules to the New OP were not consistent with OPA 637 in relation to the western portion of the Subject Property (located outside of the Greenbelt);

AND WHEREAS on June 28, 2012, the Appellant filed an appeal of the New OP to the Board for non-decision;

AND WHEREAS the TRCA has indicated that it has an interest in the Appellant's appeal;

AND WHEREAS the Appellant, the City, and the TRCA (together, "the Parties") have engaged in settlement discussions with a view to resolving the Appellant's concerns with the New OP;

NOW THEREFORE, in consideration of the sum of \$2.00, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. The Appellant acknowledges, and will advise any potential future purchasers of the Subject Property, that portions of the Subject Property are subject to *Ontario Regulation 166/06* and that the limits of the natural features will be determined in accordance with *Ontario Regulation 166/06*.
2. The Appellant will bring a motion to the Board returnable on December 2, 2013, for an Order allowing the Appellant's appeal, in part, and for:
 - a) An Order of the Board pursuant to s. 17(50) of the *Planning Act*, amending Volume 1 of the New OP, as follows:

C 23.5

OMB Case No. PL111184


- i) By amending Schedule 1 - "Urban Structure", to include a "Community Area" designation for the portion of the Subject Property that is outside of the Greenbelt, as shown on Attachment 1;
 - ii) By amending Schedule 2 - "Natural Heritage Network", to remove the "Core Features" designation from the portion of the Subject Property that is outside of the Greenbelt, as shown on Attachment 2; and
 - iii) By amending Schedule 13 - "Land Use", to include a "Lands Subject to Approved Area Specific Secondary Plans" designation for the portion of the Subject Property that is outside of the Greenbelt, as shown on Attachment 3;
- b) An Order of the Board pursuant to s. 17(50) of the *Planning Act*, amending Volume 2 of the New OP, by deleting policies 11.4.1 to 11.4.11, including Map 11.4.A, and inserting into section 11.4 the text and schedules of OPA 637, which is already in force.
3. The Appellant shall submit an Affidavit by a qualified land use planner in support of the motion, and shall have a witness available at the hearing to provide oral evidence in support of the motion, if necessary.
4. The City and the TRCA shall indicate to the Board that they are in support of the Appellant's motion.
5. The Parties shall each bear their own costs in respect of the Appellant's appeal, including the motion.
6. The Parties acknowledge that these Minutes of Settlement and the modifications contemplated in paragraph 2, if approved by the Board, constitute a full and final settlement of the Appellant's appeal.

C 23.6

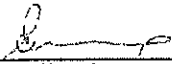
OMB Case No. PL111164

7. The Parties warrant that they have had the opportunity to consult or have consulted with legal counsel, and that they understand all of the terms of and obligations contained in these Minutes.
8. These Minutes can be signed in counterparts, and a facsimile, photocopy, or email copy of these Minutes is as binding as the original thereof.

IN WITNESS WHEREOF the Parties have executed these Minutes of Settlement as of the dates noted below.



Witness Name:
Date: Dec 20, 2013.
DANIEL
ROSENBLUTH



Ronni Rosenberg
Date: Dec 20, 2013

Witness Name:
Date:

The Corporation of the City of
Vaughan

Name:
Date:

I have the authority to bind the
Corporation.

Witness Name:
Date:

Toronto and Region
Conservation Authority

Name:
Date:

I have the authority to bind the
Corporation.

C 23.7

OMB Case No. PL111184

7. The Parties warrant that they have had the opportunity to consult or have consulted with legal counsel, and that they understand all of the terms of and obligations contained in these Minutes.
8. These Minutes can be signed in counterparts, and a facsimile, photocopy, or email copy of these Minutes is as binding as the original thereof.

IN WITNESS WHEREOF the Parties have executed these Minutes of Settlement as of the dates noted below.

Witness Name:
Date:

Nancy Boyd

Witness Name:
Date: *Dec. 17, 2013*

Ronni Rosenberg
Date:

[Signature]

The Corporation of the City of
Vaughan

Name: *CLAUDIA STORTO*
Date: *Dec. 17, 2013*

**I have the authority to bind the
Corporation.**

Witness Name:
Date:

Toronto and Region
Conservation Authority

Name:
Date:

**I have the authority to bind the
Corporation.**

C 23.8

OMB Case No. PL111184

7. The Parties warrant that they have had the opportunity to consult or have consulted with legal counsel, and that they understand all of the terms of and obligations contained in these Minutes.
8. These Minutes can be signed in counterparts, and a facsimile, photocopy, or email copy of these Minutes is as binding as the original thereof.

IN WITNESS WHEREOF the Parties have executed these Minutes of Settlement as of the dates noted below.

Witness Name:
Date:

Ronni Rosenberg
Date:

Witness Name:
Date:

**The Corporation of the City of
Vaughan**

Name:
Date:

**I have the authority to bind the
Corporation.**

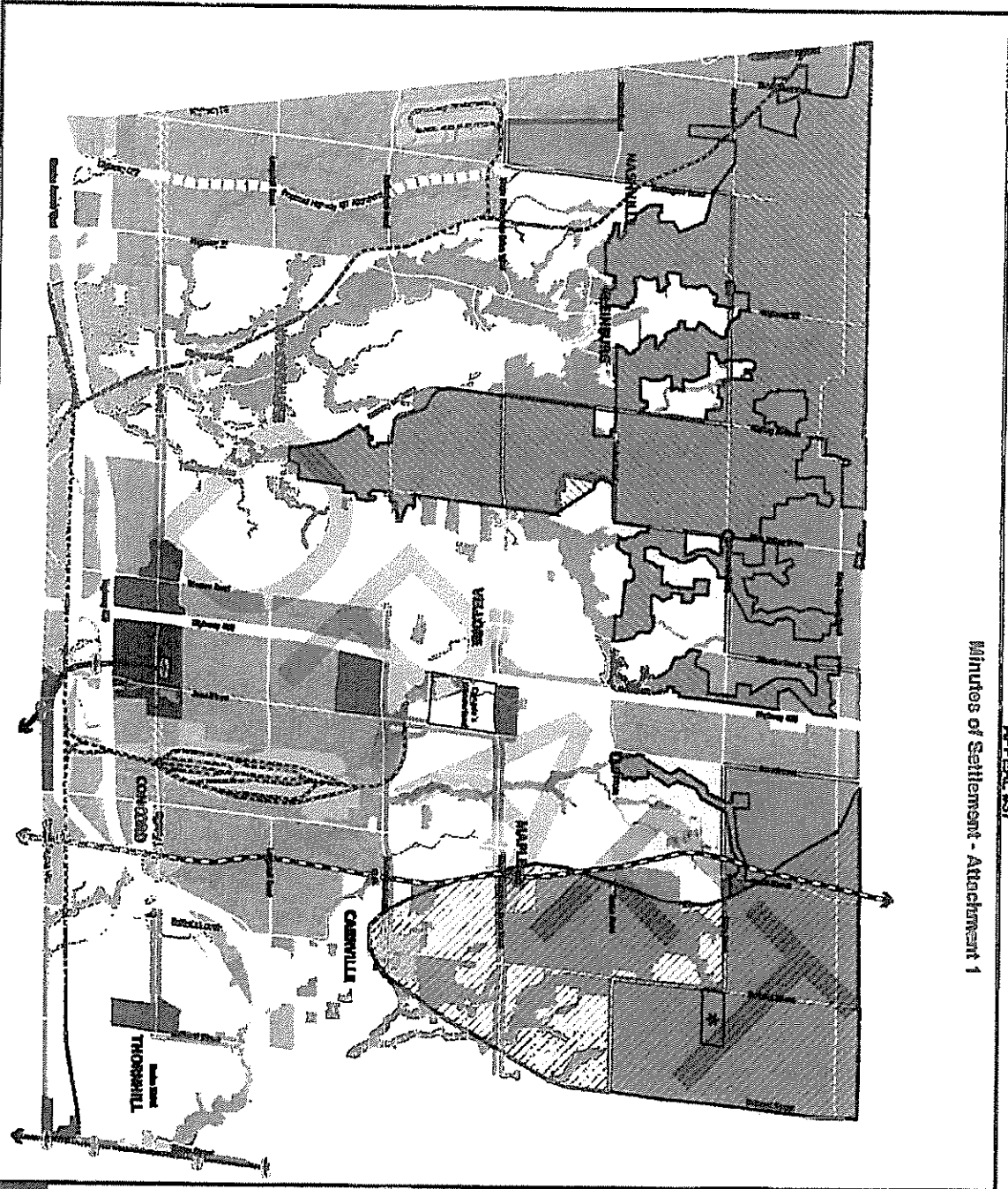
Witness Name:
Date:

**Toronto and Region
Conservation Authority**

Name: **BRIAN DENNEY CEO**
Date: **Dec 4/15.**

**I have the authority to bind the
Corporation.**

C 23.9

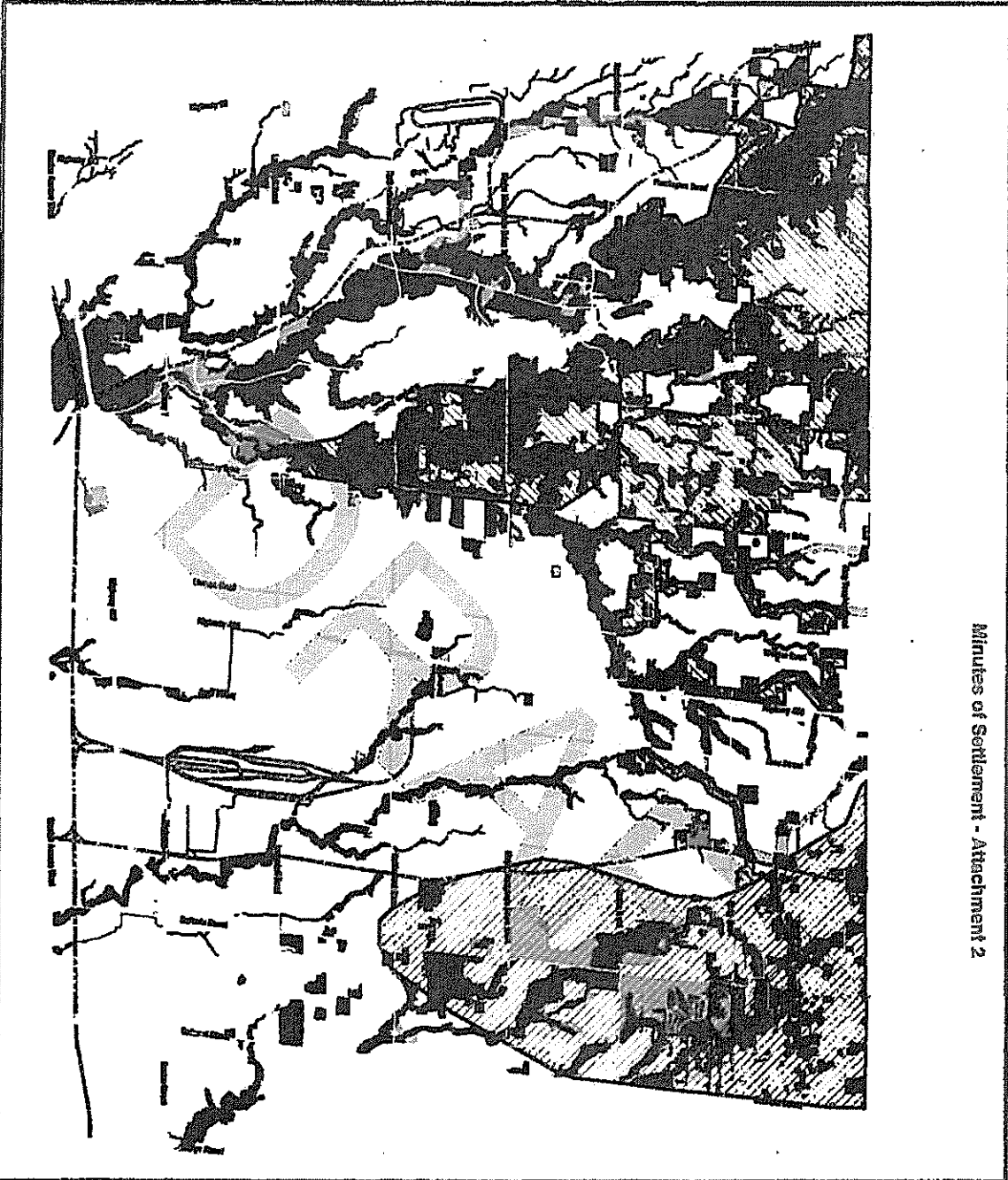


SCHEDULE 1
Urban Structure







- Urban Boundary
- Urban Growth Corridor Boundary
- Multi-Areas**
 - Natural Areas and Courtyards
 - Community Areas
 - Near Community Areas
 - Employment Areas
 - Rail Facilities
- Intentional Areas**
 - Waughan Interception Corridor Regional Centre
 - Primary Centres
 - Local Centres
 - Regional Interconnection Centres
 - Regional Interconnection Centres within Employment Areas
 - Primary Interconnection Centres
 - Primary Interconnection Centres within Employment Areas
- Other Features**
 - Parkway Built West Lands
 - Railway
 - Subway Extension
 - Regional Subway Extension
 - GO Transit Network
 - Greenbelt Plan Area¹
 - Oak Region Riparian Conservation Plan Area¹
 - Urban Growth Corridor Boundary
 - Home
 - Minister's Decision on Official Designation Declared
 - Municipal Boundary

¹ See Schedule 4 for details and land use information of the Greenbelt Plan Area and Oak Region Riparian Conservation Plan Area

C 23.10



SCHEDULE 2
Natural Heritage Network

-  Core Features
-  Enhancement Areas
-  Bulk-Up Valley Lands
-  General Plan Area
-  Oak Ridge Habitat Conservation Plan Area
-  Minister's Decision on OCMAP Designated Island Municipal Boundary

This Schedule is subject to change based on the results of the Natural Heritage Network Study, which will define the Natural Heritage Network by both the natural features and as a natural heritage system in accordance with the Provincial Policy Statement.

The policy set in Chapter 5 prevails over the mapping shown on Schedule 2 in determining the Natural Heritage Network.

* See Schedule 4 for facts and land use information of the Overlook Farm Area and Oak Ridge Habitat Conservation Plan Area



C 24
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

VIA EMAIL

June 17, 2014

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L4A 1T1

Attn: Jeffrey Abrams, City Clerk

**Re: Natural Heritage Study, Phase 2-4 Report and
Amendments to the Vaughan Official Plan 2010
June 17, 2014 Public Hearing - Item 6**

We are landowners in Block 27 and our solicitors, Davies Howe Partners LLP, have sent you the group landowner's position with respect to the above referenced item.

We write to you today to support the group's position and to advise we share their concerns. Please ensure our inclusion on all future notifications with respect to the NHN Study.

Should you have any questions, please contact the undersigned at your earliest convenience.

Yours truly,

**Ferrara Glade Investments Inc.
Heathfield Construction Ltd.**

Daniel Belli,
Vice President, Real Estate

cc: Tony Iacobelli, Environmental Planner
John Mackenzie, Commissioner of Planning

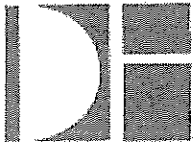
Tel: 416.736.8854
Fax: 905.660.7650

*

Tel: 416.798.1127
Fax: 416.798.2159

*

Tel: 416.798.2420
Fax: 905.653.4074



Davies
Howe
Partners
LLP

Lawyers

The Fifth Floor
99 Spadina Ave
Toronto, Ontario
M5V 3P8

T 416.977.7088
F 416.977.8931
davieshowe.com

June 17, 2014

By E-Mail only to jeffrey.abrams@vaughan.ca

Mr. Jeffrey Abrams, City Clerk
City of Vaughan
City Hall, Level 100
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Dear Mr. Abrams:

**Re: City of Vaughan Proposed Natural Heritage Network Study and Amendments to the Vaughan Official Plan 2010 ("New OP")
Block 66 West Landowners Group Inc.**

As you are aware, we are Counsel to Block 66 West Landowners Group Inc. ("Block 66"). Block 66 owns approximately 122 hectares of land situated north of Major Mackenzie Drive, east of Highway 50, south of Nashville Road and west of the hydro corridor (the "Lands").

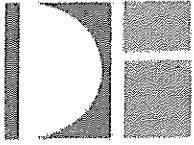
Block 66 and its consultants have reviewed the Proposed Natural Heritage Network Study (the "NHN Study") and the related amendments to the New OP (the "Proposed OPA"), and have significant concerns with respect to both.

The proposed 30 metre buffer, on either side of a high water mark of all drainage features, regardless of significance is arduous and unreasonable. Though it may be appropriate to apply a 30 metre buffer to certain watercourses (e.g. cold water streams or Provincially Significant Wetlands), it is unreasonable to apply the 30 metre buffer to unevaluated drainage features, especially where the practice is to apply smaller buffers to less significant features. Consequently, Block 66 cannot support the City's "precautionary approach".

In addition, Block 66 requests that the City provide the interactive mapping resulting from Stages 2 to 4 of the NHN Study, as had occurred following completion of Stage 1. The interactive mapping led to meaningful discussion among the stakeholders, public and City. Stakeholders and the public should have

Please refer to: **Katarzyna Sitwa**
e-mail: katarzynas@davieshowe.com
direct line: 416.263.4511
File No. 702695

C 25 COMMUNICATION CW (PH) JUNE 17/14 ITEM - 6



Davies
Howe
Partners
LLP

further opportunity to comment on the additional mapping being used to inform the NHN Study and Proposed OPA.

Finally, Block 66 requests that a note be included in the schedules and mapping identifying that feature boundaries are subject to further review through a more detailed process. The New OP includes a larger buffer area around "Core Features" which are identified as surface water features. The proposed Schedules contain substantially different Core Features and Enhancement Areas for the Block 66 lands than shown in the New OP. These modifications will significantly impact the development of the Block 66 lands for employment use as planned for in the West Vaughan Employment Area Secondary Plan.

Our client continues to review the NHN Study and Proposed OPA with its consultants and reserves the opportunity to identify additional concerns.

We trust this is satisfactory. Please do not hesitate in contacting us should you require any clarification.

Yours truly,
DAVIES HOWE PARTNERS LLP

A handwritten signature in black ink, appearing to read 'Katarzyna Sliwa'.

Katarzyna Sliwa

KS:jl

copy: Client
Ryan Mino-Leahan, KLM Planning Partners Inc.
Rick Hubbard, Savanta Inc.



M.A.M.
Group Inc.

C 26
COMMUNICATION
W (PH) - JUNE 17/14
ITEM - 6

June 17, 2014

VIA EMAIL

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L4A 1T1

Attn: Jeffrey Abrams, City Clerk

**Re: Natural Heritage Study, Phase 2-4 Report
June 17, 2014 Public Hearing - Item 6
City File - 25.5.4**

We are landowners in the City's employment blocks 34 West and 35 East and our planning consultants, Humphries Planning Group Inc., have sent you the group landowner's position with respect to the above referenced item.

We write to you today to support the group's position and to advise we share their concerns. Please ensure our inclusion on all future notifications with respect to the NHN Study.

Should you have any questions, please contact the undersigned at your earliest convenience.

Yours truly,

**Western Point Builders Inc.
Olanna Estates Inc.
Natanya Hills Builder Corp.
Goldenrod Meadows Home Corp**

Daniel Belli,
Vice President, Real Estate

cc: Tony Iacobelli, Environmental Planner
John Mackenzie, Commissioner of Planning

Starlane
HOME CORPORATION

Tel: 416.736.8854
Fax: 905.660.7650

TRINISON
MANAGEMENT CORP

Tel: 416.798.1127
Fax: 416.798.2159

TRINistar
CORPORATION

Tel: 416.798.2420
Fax: 905.653.4074



LOOPSTRA NIXON LLP

BARRISTERS AND SOLICITORS

Quinto M. Annibale*
*Quinto Annibale Professional Corporation
Direct Line: 416-748-4757
E-mail: qannibale@loonix.com

June 17, 2014

C 27
COMMUNICATION
CW (PH) JUNE 17/14
ITEM - 6

By E-Mail

Mayor Maurizio Bevilacqua and Members of Council
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Dear Mayor and Members of Council:

**Re: Submission Respecting the Natural Heritage Network Study Public Meeting
Kirbywest Ltd.
Part of the East Half of Lot 30, Concession 6, City of Vaughan**

I am the solicitor for Kirbywest Ltd. ("Kirbywest"). Kirbywest is the owner of approximately 42 hectares of land located in Block 41 of the City of Vaughan (the "City"), legally described as Part of the East Half of Lot 30, Concession 6, City of Vaughan.

Kirbywest has been actively involved in the Natural Heritage Network Study ("NHN Study") process, making written submissions, working with City staff, and attending at Council meetings as well as public meetings. Kirbywest continues to have concerns respecting the NHN Study and the proposed modifications to the Vaughan Official Plan, 2010, but it is hopeful that said concerns can be resolved in the near future. We look forward to continuing to work with the City respecting this matter.

Should you have any questions with respect to the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

LOOPSTRA NIXON LLP

Per:


Quinto M. Annibale

QMA/scf

- cc Jeffrey A. Abrams, City Clerk
- cc John MacKenzie, Commissioner of Planning
- cc Tony Jacobelli, Senior Environmental Planner
- cc Client



LOOPSTRA NIXON LLP

BARRISTERS AND SOLICITORS

Quinto M. Annibale*
*Quinto Annibale Professional Corporation
Direct Line: 416-748-4757
E-mail: qannibale@loonix.com

June 17, 2014

C 28
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

By E-Mail

Mayor Maurizio Bevilacqua and Members of Council
City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Dear Mayor and Members of Council:

**Re: Submission Respecting the Natural Heritage Network Study Public Meeting
Eugene and Lillian Iacobelli
Part of the East Half of Lot 17, Concession 3, in the City of Vaughan, Part 1 on
Plan 65R-29377**

I am the solicitor for Eugene and Lillian Iacobelli (the "Iacobelli's") in the matter referenced above. The Iacobelli's are the owners of approximately 4.5 hectares of land in the City of Vaughan, legally described as Part of the East Half of Lot 17, Concession 3, in the City of Vaughan, Part 1 on Plan 65R-29377 ("Subject Property").

I have reviewed the Natural Heritage Network data and documentation as it relates to the Subject Property. I recognize that the current data and documentation, including the proposed revisions to the Vaughan Official Plan, 2010, are currently in draft form and I look forward to working with the City to correct the obvious errors therein.

It is clear that the Natural Heritage Network data and documentation does not represent the current site conditions of the Subject Property and as a result, my client cannot support the NHN Study, nor the proposed amendments to the Vaughan Official Plan 2010, at this time. To the best of my knowledge, no core feature has been identified as being located on the Subject Property through the NHN Study process except for the possible location of a small surface water feature which encompasses a very small area of the Subject Property. Despite this, the whole of the Subject Property (with the exception of a very small piece) is identified as a Core Feature on the proposed revision to Schedule 2, Natural Heritage Network.

It appears that rather than relying on field investigations, aerial photography, and up to date GIS Mapping to "determine the precise limits of natural heritage features", city staff has relied on previous approvals, misinformation, and a misinterpretation of the law to support the current NHN Study mapping. When undertaking such an ambitious project, it is understandable that mistakes can be made. It is my hope that we can be of assistance to the City to correct this error which has caused my client much prejudice before Council approves the proposed amendments.



Field investigations of the subject property have confirmed the lack of natural heritage features on the majority of the Subject Property. The proposed revisions to the Vaughan Official Plan, 2010, should reflect these existing site conditions.

Please accept this letter as a formal request for a meeting to discuss the errors in the current NHN Study documentation and data and how said errors can be resolve. I look forward to working with the City on this very important matter.

Please contact the undersigned or Steven C. Ferri of this office to set a time schedule a meeting or to discuss this matter further. Also, please copy Mr. Ferri on all correspondence respecting this matter (sferri@loonix.com/416-748-4752).

Yours truly,

LOOPSTRA NIXON LLP

Per:

Quinto M. Annibale

cc Jeffrey A. Abrams, City Clerk
cc John MacKenzie, Commissioner of Planning
cc Tony Iacobelli, Senior Environmental Planner
cc Client

QMA/scf



**WESTON
CONSULTING**
planning + urban design

C 29
COMMUNICATION
CW (PH) - JUNE 17/14
ITEM - 6

Planning Policy Department
City of Vaughan
Level 200
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

June 17, 2014
File 6715

Attn: Tony Iacobelli, Senior Environmental Planner

Dear Sir,

**RE: City of Vaughan Natural Heritage Network Study
7553 Islington Avenue & 150 Bruce Street
City of Vaughan**

Weston Consulting is the authorized planning consultant for 7553 Islington Holding Inc., the registered owner of the properties located at 7553 Islington Avenue and 150 Bruce Street in the City of Vaughan (herein described as the 'subject properties'). The subject properties are located on the east side of Islington Avenue, south of Highway 7 and are a combined area of approximately 4.39 acres.

Our client has previously filed an appeal (formerly known as Briardown Estates Inc.) to the City of Vaughan Official Plan 2010, which designates the subject properties as "*Natural Areas and Countryside*" based on Schedule 1: Urban Structure; "*Core Features*" based on Schedule 2: Natural Heritage Network; and "*Natural Areas*" based on Schedule 13: Land Use.

The owner has commissioned an Environmental Impact Study for the subject properties. Detailed investigation and analyses have been completed for the subject property, which do not identify the constraints noted on Schedule 2, Schedule 2a and Schedule 2b of the NHNS. A summary of the specific comments and concerns are outlined in the attached letter prepared by WSP and we wish to advise that our client does not support the findings of the NHNS, as prepared.

We hereby request the opportunity to meet with Staff to review this information and reserve our right to make further comments. We further request to be notified of any further meetings, reports, modifications, and / or decisions in relation to the NHNS.

Please contact the undersigned or Courtney Heron-Monk (extension 401) if you have any questions.

Yours truly,
Weston Consulting
Per:



Ryan Guetter, BES, MCIP, RPP
Vice President

- c. Jeffrey A. Abrams, City Clerk
Raymond Nicolini, 7553 Islington Holding Inc.
Howard Wortzman, 7553 Islington Holding Inc.
Joseph Reichmann, 7553 Islington Holding Inc.
Patrick Harrington, Aird & Berlis LLP



June 17, 2014

Tony Iacobelli
Senior Environmental Planner
Policy Planning Department
City Hall, Level 200
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

**Subject: Review of the Natural
Heritage Network Study (NHNS) as it relates to
7553 Islington Ave., Community of Woodbridge,
City of Vaughan, Regional Municipality of York
Project No. 121-24682-01**

WSP Canada Inc. (WSP) (formerly GENIVAR Inc.) was retained to review the Natural Heritage Network Study (NHN) and supporting documents. Our review will focus on issues as they apply to the property known as 7553 Islington Avenue, inclusive of 150 Bruce Street, City of Vaughan, Ontario. The property can be described as Part of Lot 4, Concession 7, Township of Vaughan, Regional Municipality of York; herein referred to as the "Site".

Under the Woodbridge Community Plan (City of Vaughan Amendment No. 240, 2007), land use on the Site is designated as being within 'Open Space', and 'Low Density Residential'. Within the 2012 City of Vaughan Official Plan land use on the Site has been designated as being 'Natural Area' within Schedule 1, within 'Urban Area' in Schedule 1A, within a 'Core Features' area in Schedule 2, and is not within the Oak Ridge's Moraine or Greenbelt planning areas. Southwestern portions of the Site are within the TRCA regulated area, which are associated with the Humber River which lay beyond Islington Avenue to the southwest.

The NHN report suggests that the policy can stipulate that the habitat of Endangered and Threatened species may be incorporated into the NHN, where identified. WSP completed an Environmental Impact Study (EIS) on the Site to determine the presence of any Species at Risk (SAR). One (1) Species at Risk (Butternut) was identified as being present on and surrounding the site. Four (4) individuals were identified and assessed in the presence of Ministry of Natural Resources forestry staff, and it was determined that only one (1) individual was retainable. This individual was greater than 25 m from the proposed development, and will not be negatively impacted during any phase of the project.



The NHN report strengthens and defines forest cover goals for Vaughan as follows:

- At least 30% overall forest cover for Vaughan (currently 11%);
- At least 10% overall interior habitat for Vaughan (currently 0.5%); and,
- At least one large contiguous forest within each watershed for Vaughan (>200 ha).

The Site is separated from the Humber River by Islington Ave., which acts as a significant barrier to wildlife movement, making it unlikely to be widely used as a wildlife corridor surrounding the river. Thus, the Site should not be considered part of the larger Humber River watershed forest.

The NHNS report strengthens and defines goals for overall Riparian Habitat in Vaughan (75% cover goal, currently 30%). The Site is separated from the Humber River by Islington Ave. and a section of manicured lawn area. This severely limits any potential use as direct riparian habitat and the Site should not be considered as such.

The NHNS report notes that Significant Wildlife Habitat (SWH) will be given increased importance in planning activities. Additional guidelines to define Significant Wildlife Habitat are also provided. Species inventories were completed during the Environmental Impact Study, with emphasis on Species at Risk and any rare or significant wildlife habitat types. In general, The Site consisted of a large portion of non-native or invasive species, with significant edge effects occurring due to previous development within the area. Though one SAR species was noted; one (1) retainable Butternut noted above, the Site likely does not fit the criteria for Significant Wildlife Habitat.

Thank you for the opportunity to complete this assignment. Please contact the undersigned with any questions or comments.

Yours truly,
WSP Canada Inc.

A handwritten signature in black ink, appearing to read "Dan J. Reeves".

Dan J. Reeves, B.Sc., M.Sc.
Project Biologist

DJR:nah



**WESTON
CONSULTING**

planning + urban design

C <u>30</u>
COMMUNICATION
CW (PH) - <u>JUNE 17/14</u>
ITEM - <u>6</u>

Planning Policy Department
City of Vaughan
Level 200
2141 Major Mackenzie Drive
Vaughan, Ontario L6A 1T1

June 17, 2014
File 6381

Attn: Tony Iacobelli, Senior Environmental Planner

Dear Sir,

**RE: City of Vaughan Natural Heritage Network Study
4650 Highway No. 7
City of Vaughan**

Weston Consulting is the authorized planning consultant for Pebble Creek Development Inc., the registered owner of the property located at 4650 Highway No. 7 in the City of Vaughan. The property is located on the west side of Pine Valley Drive, north of Highway 7 and is approximately 3.1 hectares in area.

The owner is proposing a redevelopment of the subject property for a low rise residential development and applications will be submitted to the City in the near future. These applications include official plan amendment, zoning by-law amendment and draft plan of subdivision applications and will be supported by various technical studies including an Environmental Impact Study (EIS), which has been prepared by Dillon Consulting Limited.

Portions of the subject property are designated "Natural Areas" according to the City of Vaughan Official Plan and we note that certain policies in the Official Plan permit modifications to the boundaries of the designation based on the completion of appropriate technical studies. Given that a detailed EIS has been prepared for the property that delineates natural heritage features, we request that the City's Natural Heritage Network (NHN) Study and corresponding mapping be modified to reflect the information contained in the EIS, which will be subject to a forthcoming planning application process.

In our opinion, it would be appropriate to have the City's NHN reflect the more detailed analysis of natural heritage features that included field work, inventories and the staking of development limits and natural features with the Toronto and Region Conservation Authority.

Given the imminent submission of the EIS to the Development Planning Department, we have not attached the report to this correspondence.

Please consider this our formal request to be notified concerning any further meetings or decisions concerning this study and the related official plan amendment. We reserve the right to provide

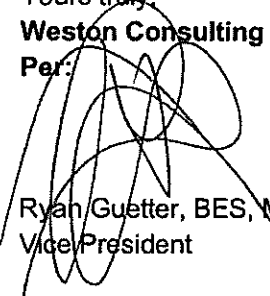
further comments in relation to the study and the corresponding official plan amendment, as may be required, and we would be pleased to meet with you to discuss the EIS or our comments herein at the appropriate time.

Please contact Jack Wong (ext. 244) or the undersigned if you have any questions. In addition to the undersigned, please notify Gabriel DiMartino at gdimartino@graywoodgroup.com.

Yours truly,

Weston Consulting

Per:



Ryan Guetter, BES, MCIP, RPP
Vice President

- c. G. DiMartino, Graywood Developments Ltd.
- A. Benson, Dillon Consulting Limited
- City Clerk, City of Vaughan

June 17, 2014

BEL 214098

Mr. Jeffrey Abrams, City Clerk
City of Vaughan
City Hall, Level 100
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

C 31
COMMUNICATION
CW (PH) - <u>JUNE 17/14</u>
ITEM - <u>6</u>

Dear Mr. Abrams:

Re: City of Vaughan Proposed Natural Heritage Network Study and Amendments to the Vaughan Official Plan 2010
Written Submission Pursuant to s. 17(20) of the *Planning Act* Made on Behalf of Brownside Meadows Home Corp. (9290 McGillvray Road, Part of Lot 16, Concession 9) – Block 60

Dear Mr. Abrams:

Beacon Environmental has been reviewing the City's NHN Study on behalf of the Brownside Meadows Home Corp. in respect of a property in Block 60 located at 9290 McGillvray Road (Part of Lot 16, Concession 9). The purpose of this letter is to advise the City of Vaughan of several concerns regarding the Natural Heritage Network Study and proposed amendments to the Vaughan Official Plan (2010) as they pertain to this specific property.

I would like to point out that Beacon Environmental provided comments to the City (letter to Mr. Tony Iacobelli, Senior Environmental Planner, dated April 16, 2014) regarding an earlier version of the draft NHN mapping that was posted on the City's website at that time. The April 16th letter provided site specific information regarding the presence or absence of various terrestrial and aquatic natural features, based on recent Beacon field investigations. This information was provided with the expectation that the information contained therein would be taken into consideration by the City and its consultants (North-South Environmental) when refining the NHN mapping for this area.

In particular, Beacon had noted that a headwater drainage feature on the property was an ephemeral watercourse and therefore did not warrant being designated as a Core Feature, to which a 30 m buffer on each side has been applied. Photographs of this feature were

provided as part of our April 16th submission, which clearly show that it is situated in a cultivated field and that it has no riparian vegetation associated with it.

Notwithstanding this information, this tributary still appears as a Core Feature on the proposed NHN mapping (Schedule 2), raising the question of whether the information provided by Bacon was in fact considered.

Also of concern is the addition of several areas of open tableland (agricultural fields) adjacent to the Rainbow Creek valley, which have been identified on Schedule 2 as Enhancement Areas. These areas were not mapped as such in Schedule 2 of the Vaughan Official Plan (2010); in fact they had no NHS designation whatsoever at that time. We are unclear as to why these areas have been identified as Enhancement Areas in the proposed NHN mapping and request clarification and a rationale from the City in this regard.

We would like to continue to be appraised of this project. We would also request the opportunity to continue to review future iterations of the proposed mapping and text changes and to meet again with City staff to discuss this matter further. Thank you for your consideration of these comments.

Yours truly,
Beacon Environmental



Julianna MacDonald, B.Sc., MES (PI)
Planning Ecologist



Donald M. Fraser, M.Sc.
Principal

cc. Brownside Meadows Home Corp. c/o D. Belli, Trinistar Corporation

**6. NATURAL HERITAGE NETWORK
 INVENTORY AND IMPROVEMENTS PHASES 2 TO 4
 FINAL CONSULTING TEAM REPORT AND RECOMMENDATIONS
 AMENDMENTS TO THE VAUGHAN OFFICIAL PLAN 2010
 FILE 25.5.4**

P.2014.30

Recommendation

The Commissioner of Planning, Interim Director of Planning/Director of Development Planning, and Manager of Policy Planning recommend:

1. THAT this report BE RECEIVED and that any issues raised at the Public Hearing, or raised in subsequent correspondence, be addressed by the Vaughan Planning Department's Policy Planning Division in a future Technical Report to the Committee of the Whole in respect of:
 - a) the final reports of the Natural Heritage Network Study, prepared by North-South Environmental Inc. in collaboration with the LURA Group, Orland Conservation and R.J. Burnside Associates, forming Attachment 1 and Attachment 2 to this report;
 - b) the draft amendments to the Vaughan Official Plan 2010, as set out in Section 6 of this report.

Contribution to Sustainability

Two specific action items in Green Directions Vaughan (2009), the City's Community Sustainability and Environmental Master Plan, relate to the need to complete a natural heritage system.

1.3.2. Through the development of the City's new Official Plan, and in partnership with the Toronto and Region Conservation Authority, ensure protection of remaining natural features and explore opportunities for habitat restoration in headwater areas, along riparian corridors, and around wetlands.

2.2.4. Develop a comprehensive Natural Heritage Strategy that examines the City's natural capital and diversity and how best to enhance and connect it. As part of this action:

- *Develop an inventory of Vaughan's natural heritage, and identify opportunities for habitat restoration;*
- *Ensure that policies in the City's new Official Plan protect all ecological features and functions as per current provincial and regional policies, and also include consideration for locally significant natural features and functions;*
- *Develop policies to create opportunities for near urban agriculture within Vaughan's rural areas, through policies described in the City's new Official Plan.*

The refinement of the Natural Heritage Network and development of a stewardship strategy in Phases 2 through 4 of the Natural Heritage Network Study are key components in support of Green Directions Vaughan.

Consistent with Green Directions Vaughan, the Environmental policies in Chapter 3 of VOP 2010 direct that appropriate studies be undertaken to determine the precise limits of "natural heritage features and any additions to the mapped network". VOP 2010 is consistent with the York Region Official Plan policies, which directs local municipalities to develop local greenlands systems.

Economic Impact

Funding for undertaking the Natural Heritage Network Study was included in the 2011 Capital Budget (PL-9025-11) on the basis of a two part allocation. Phase 1 was treated as a stand-alone project and was funded in the amount of \$52,400. In the 2012 Capital budget, the funding for Phases 2, 3, and 4 was approved at \$199,700. The total budget for the preparation of the Natural Heritage Network Study is \$252,100.

Communications Plan

A communications and public consultation plan was implemented as part of the process of conducting Phases 2 to 4 of the Natural Heritage Network Study. A summary of stakeholder and broader public consultation is provided in this staff report.

Notice of this meeting has been communicated to the public by the following means:

- Advertised in the Vaughan Citizen and Thornhill Liberal on May 29, 2014;
- Posted on the www.vaughan.ca online calendar, Vaughan Tomorrow website www.vaughantomorrow.ca City Page Online;
- Posted to the City's social media sites, Facebook and Twitter;
- By Canada Post to ratepayer associations; and to all those requesting notification specific to the Natural Heritage Network;
- By Canada Post to almost 1400 addresses on the Vaughan Tomorrow/Official Plan Review mailing list; and,
- To the Official Plan Review/Natural Heritage Network/VOP appellant e-mail lists.

Purpose

This report presents the findings of the Natural Heritage Network (NHN) Study for the purposes of obtaining public comment prior to its finalization. This staff report summarizes:

- The findings of the NHN Study with respect to the criteria for Core Features and Enhancement Areas of the NHN;
- Recommended amendments to select policies of Chapter 3 (Environment) and Schedules of the VOP 2010 for which this meeting serves as the statutory public hearing under the *Planning Act*; and
- Elements of a work plan to implement the findings of the NHN Study, including interpreting the Conservation Land Securement Strategy document, to improve the NHN over time.

A future Technical Report(s) to the Committee of the Whole will be prepared with recommendations, in response to input from the Public Hearing, comments in writing thereafter, and any additional comments from public agencies, which will form the basis for the approved Natural Heritage Network Study and the finalization of the amendments to VOP 2010 for the purposes of their adoption by Council.

Background - Analysis and Options

1. The Policy and Planning Context

A rigorous Provincial and Regional policy framework provides direction in the maintenance, restoration, or improvement of the diversity and connectivity of natural features and the long-term ecological function and biodiversity of natural heritage systems in the Greater Toronto Area. This policy framework is reflected in the environmental policies of VOP 2010. The following policy documents were consulted in the preparation of the environmental policies of VOP 2010 and the Terms of Reference for Phase 1 and Phases 2 to 4 of the Natural Heritage Network Study:

- The Growth Plan for the Greater Golden Horseshoe (2006);
- The Provincial Policy Statement (2005) and the Natural Heritage Reference Manual - Second Edition (2010);
- The Greenbelt Plan (2005);
- The Oak Ridges Moraine Conservation Plan (2002);
- The Endangered Species Act (2007);
- The Ontario Biodiversity Strategy (2011);
- The York Region Official Plan (2010); and
- Ontario Regulation 166/06 under the Conservation Authorities Act.

a) Provincial Policies

i. The Growth Plan for the Greater Golden Horseshoe – Places to Grow

The Province of Ontario approved the Growth Plan for the Greater Golden Horseshoe (GGH) - Places to Grow in 2006. The Growth Plan sets out a vision for growth in the GGH to the year 2031. This includes a set of long-range growth forecasts and direction on how growth should be accommodated and managed effectively.

The Growth Plan supports the role of municipal policy in providing leadership and innovation in developing a culture of conservation. The Growth Plan also encourages planning authorities to identify natural heritage features and areas that complement, link, or enhance natural systems. Municipalities are encouraged to develop a system of publicly accessible parkland, open space and trails embedded in a natural heritage system as well as establish an urban open space system within built-up areas, which include rooftop gardens, communal courtyards, and public parks.

ii. The Provincial Policy Statement

The Provincial Policy Statement (PPS) has a strong focus on the long-term prosperity and environmental health of Ontario. It states that “*natural features and areas shall be protected for the long-term*” (PPS 2.1.1) and the “*long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved*” (PPS 2.1.2). The PPS defines natural features and areas as:

“features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valley lands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area”.

The PPS also defines natural heritage system as:

“A system made up of natural heritage features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state”.

The revisions to the PPS in 2014 include a new policy to complete natural heritage system planning in southern Ontario (PPS 2.1.3), as excerpted below:

“Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.”

iii. The Greenbelt Plan

The Greenbelt Plan contains policies for providing permanent agricultural and environmental protection as well as providing for a wide range of recreation, tourism and cultural opportunities. The Protected Countryside area comprises an Agricultural System and a Natural System, together with a number of settlement areas. It is intended to improve linkages between these areas and surrounding systems. The Natural System identifies lands that support both natural heritage and hydrologic features and functions. The Greenbelt Plan recognizes that the Natural System extends beyond the boundaries of the Greenbelt and encourages connections between the Greenbelt's Natural System and the broader scale natural heritage systems of southern Ontario. Criteria have been defined to permit potential municipal requests to expand the Greenbelt. The Greenbelt Plan will be subject of a forthcoming Provincial government statutory review. This is addressed later in the report.

iv. The Oak Ridges Moraine Conservation Plan

The Oak Ridges Moraine Conservation Plan (ORMCP) is a fundamental component of the Greenbelt Plan. The Oak Ridges Moraine is an environmentally sensitive, geological landform in south central Ontario, covering 190,000 ha. It has a unique concentration of environmental, geological and hydrological features that make its ecosystem vital to south-central Ontario. The ORMCP identifies four categories of land use: Settlement; Countryside; Natural Linkage; and Natural Core. The latter two designations are the most restrictive, and provide the most aggressive goals for the protection of natural heritage. The Oak Ridges Moraine Conservation Plan will be subject of a forthcoming Provincial government statutory review. This is addressed later in the report.

v. Endangered Species Act

The new Endangered Species Act (2007) is the first in Canada to combine mandatory habitat protection with a science-based approach to listing species for protection. Species thought to be at risk are assessed by The Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent body that reviews species based on the best available science, including community knowledge, and Aboriginal Traditional Knowledge. Once species are classified as "at risk", they are added to the Species at Risk in Ontario (SARO) list in one of four categories. Endangered, threatened, special concern and extirpated species on this list automatically receive legal protection under the ESA 2007. Providing legal protection to threatened species is a change from the original Act which only applied to endangered species. Under the ESA 2007, it is legally required to protect direct and indirect habitat of endangered species. Habitat regulations under the Act are available for Redside Dace (Regulation 293/11), which is relevant to the NHN Study in Vaughan.

vi. Ontario's Biodiversity Strategy, 2011

Ontario's Biodiversity Strategy, 2011 is the guiding framework for coordinating the conservation of Ontario's variety of life and ecosystems. The success of this Strategy will be tracked through 15 specific targets representing key areas of focus for biodiversity conservation in Ontario. The progress will be monitored and assessed over a 10-year time frame to encourage people across all sectors to take actions that will ultimately lead to securing and maintaining Ontario's biodiversity. Several of the 15 targets refer directly

to implementing natural heritage systems for biodiversity conservation, maintaining and enhancing ecosystem services, and reporting on the state of Ontario's biodiversity.

b) York Region Official Plan (YROP)

The York Region Official Plan (ROP 2010), approved by the Minister of Municipal Affairs and Housing on September 7, 2010, is the upper tier planning document that provides the framework for achieving the Region's urban structure. The ROP 2010 received a number of partial approvals by the Ontario Municipal Board between July 11, 2012 and March 5, 2013. Chapter 2, "A Sustainable Natural Environment", was included in the July 11, 2012 partial approval.

Any amendments to the City's Official Plan must conform to the Region's Official Plan. The ROP 2010 recognizes the importance of integrating the objectives of the natural environment with those for healthy communities and economic vitality as outlined in its Sustainability Strategy (2007). The importance of maintaining and enhancing a healthy Regional Greenlands System is emphasized in the ROP 2010.

The Region's policy framework has been brought into conformity with the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, the York Region Significant Woodlands Study (2005), among other important policy documents, which will serve to identify and protect the Greenlands System. The primary function of the Regional Greenlands System is:

"... the protection of natural heritage features in a system of cores connected by corridors and linkages. The Regional Greenlands System also provides opportunities for passive recreation in a future Regional Trails System such as hiking and nature appreciation. Urban uses and infrastructure projects should contribute ecological gains to the Regional Greenlands System through enhancement and restoration, and the strategic creation of natural habitat."

It is the intent that the Vaughan Natural Heritage Network (NHN) and supporting policies be consistent with the objectives identified in the ROP 2010.

c) Toronto and Region Conservation Authority Policy and Regulation

The province has delegated approval authority to the Toronto and Region Conservation Authority (TRCA) for the Natural Hazard section of the PPS. The TRCA also has a commenting role on development applications submitted to the municipality under the Planning Act for aspects of water resource systems and natural heritage. They rely on four key instruments to guide their comments and permitting: the Terrestrial Natural Heritage System Strategy (2007); watershed plans; the Valley and Stream Corridor Management Program (1994); and Regulation 166/06 under the Conservation Authorities Act.

The objective of the TRCA Terrestrial Natural Heritage System (TNHS) is to identify and evaluate natural heritage features and functions within the landscape, for inclusion in a Natural Heritage System. The Humber River Watershed Plan and Don River Watershed Plan describe the TNHS for the respective watersheds and include implementing recommendations regarding land use, outreach and stewardship.

Watershed Plans are mandated under the Oak Ridges Moraine Conservation Plan. The Humber River Watershed Plan: Pathways to a Healthy Humber and the Implementation Guide (2008) and the Don River Watershed Plan: Beyond 40 Steps and Implementation Guide (2009) provide guiding principles and objectives that support strategies and targets that include the protection and expansion of the terrestrial natural heritage system, building sustainable communities and creating an enhanced regional open space system.

The TRCA's Valley and Stream Corridor Management Program outlines policies that seek to retain watercourses and valley and stream corridors as open, natural landforms, from the headwaters to the river estuary marshes. These policies guide the TRCA Planning and Development staff when reviewing applications under Ontario Regulation 166/06 and in commenting on land use planning policy documents and development applications.

Ontario Regulation 166/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, is the regulation under Section 28 of the Conservation Authorities Act that is specific to the TRCA. The main objectives of O.R. 166/06 are to ensure public safety and protect property with respect to natural hazards and to safeguard watershed health by preventing pollution and impacts to sensitive environmental areas such as wetlands, shorelines and watercourses.

On May 6, 2014 the TRCA released the revised draft of "The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority" (the "LCP") for a final round of public consultation. The LCP document contains the principles, goals, objectives, and policies approved by the TRCA Board for the administration of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. The 'Living City Policies' document supersedes all of Sections 1 through 4 and elements of Sections 5 and 6 of the Valley and Stream Corridor Management Program and clarifies the current practice of TRCA's role as a watershed and shoreline manager, regulator, commenting agency, service provider, and landowner in the context of the planning and development process. Its final approval is expected in the Fall of 2014

d) Initiatives Pertaining to the Long-Term Maintenance, Restoration and Improvement of the NHN

There are several important initiatives that are either underway or imminent that have the potential to affect the City's Natural Areas. The Natural Heritage Network study will provide a basis for participating in the respective processes, for the purposes of identifying and protecting high value features and where necessary, developing mitigation strategies and compensation programs.

i. The GTA West Corridor Study

Stage 2 of the Ontario Ministry of Transportation (MTO) GTA West Corridor project is currently underway. This will focus on identifying the route and developing the preliminary design for a new transportation corridor. The new corridor will extend from Highway 400, between Kirby Road and King-Vaughan Road to the western part of the GTA, with a north-south link to the planned extension of Highway 427 to Major Mackenzie Drive, immediately to the west of Kleinburg-Nashville. It will feature a 400-series highway, a transitway, and potentially goods movement priority features. The Preliminary Route Planning Study Area in the City of Vaughan is an approximately 2 kilometre wide corridor extending from Kirby Road and King-Vaughan Road near Highway 400 and extending from north of Major Mackenzie Drive proceeding south, to accommodate the Highway 427 link at the Peel Region boundary. It has the potential to fragment the natural habitat of the NHN inside and outside of the Greenbelt Plan area and affect both publicly and privately owned lands.

ii. Provincial Review of the Greenbelt Plan and Oak Ridges Moraine Conservation Plan

The Greenbelt Plan, released in 2005, protects a large area of agricultural lands within the Greater Golden Horseshoe. Included within the Greenbelt Plan area are lands subject to the Niagara Escarpment Plan and lands subject to the ORMCP. To coordinate reviews of these three Plans, the Province delayed reviews of the latter two Plans until 2015, ten years following the release of the Greenbelt Plan.

York Region staff brought forward a report to the Region's Committee of the Whole (Clause No. 7, Report No. 7, April 3, 2014) providing high-level comments on the Greenbelt Plan and ORMCP as a preliminary assessment, in preparation for the Province's formal review. The Region's report concludes, in part:

"The Province should be commended on these Plans and the successes achieved through 10+ years of implementation of the Greenbelt Plan and ORMCP. The Region encourages comprehensive and coordinated consultation involving the Greenbelt Plan, the ORMCP, and the Growth Plan. Notwithstanding the success of these plans, improvements can still be made during the upcoming Provincial review. The Province is requested to both conduct a comprehensive and collaborative review process and consider the input provided in this report to ensure that these Plans continue to protect and enhance environmental and agricultural protection with the Greater Golden Horseshoe, while providing for growth and economic vitality in a sustainable manner."

An agricultural landscape can be very supportive of biodiversity and the Natural Heritage Network. Results of the NHN Study will inform the City's input on the role of the Natural Heritage System overlay of the Greenbelt Plan and the Natural Core, Natural Linkage and Countryside designations of the ORMCP.

iii. The City of Vaughan New Community Areas: The Blocks 27 and 41 Secondary Plans

The York Region Official Plan and VOP 2010 identify two areas which will provide for urban expansion to assist in fulfilling the City's mandated population growth to 2031. The City will be embarking on the Secondary Plan preparation processes for both Blocks 27 and 41 in the Fall of 2014. To support the preparation of the Secondary Plans, individual Subwatershed Plans will be prepared for the Block 27 area (The Don River Headwaters) and Block 41 Area (The Humber River Headwaters). The Natural Heritage Network Study will inform the development of both Subwatershed Studies and the preparation of the Secondary Plan level environmental policies.

2. Relationship to Green Directions Vaughan and VOP 2010

The protection, restoration and enhancement of natural areas in the City's Natural Heritage Network is one supporting action, directed at achieving healthy and vibrant communities, that is reflected in the City's sustainability strategy, Green Directions Vaughan. While two action items in Green Directions Vaughan specifically address the Natural Heritage Network (Action Items 1.3.2 and 2.2.4), related actions also support a more comprehensive and integrated approach to improve open space and natural areas for community benefits, including: the implementation of green infrastructure (e.g. treatment train approach to stormwater management and urban forests); the provision of recreation, open space, trails and other active transportation paths; and support for agricultural initiatives. The scope of the Natural Heritage Network Study has a clear focus on biodiversity persistence and sustaining key ecological functions. However, the benefits to residents through the provision of ecosystem services (e.g. clean air, clean water, flood protection, carbon sequestration) and the amenity value of the City's existing and restored natural areas is a critical broader context for the NHN Study, which contributes to the quality of life.

Achieving key milestones of the NHN Study is also a requirement for the initiation of the New Community Areas Secondary Plan process. Policy 10.1.1.2 of VOP 2010 provides:

*The initiation of the **New Community Areas** Secondary Plan(s) within the Region of York Official Plan Amendment No. 2 Area, as shown on Schedule 1, will not proceed until the Natural Heritage Network Study is substantially completed. For the purpose of the Natural Heritage Network Study substantial completion means the submission by the*

landowners within the ROPA 2 amendment area of information in a format and at a level of detail consistent with the TRCA, York Region and City of Vaughan policies, a report to Committee of the Whole and Council on the findings of Phase 1 of the Natural Heritage Network Study and Council approval of the Terms of Reference for Phases 2-4.

The City will be proceeding with the issuance of Requests for Proposals for the preparation of the Secondary Plans, based on the following outcomes:

- a) Phase 1 of the NHN Study has been completed and a staff report summarizing the findings was provided to Committee of the Whole (Working Session) on December 4, 2012. Committee of the Whole recommended that a summary of the public consultation component be provided to the January 15, 2013 Committee of the Whole meeting; and Phase 1 was subsequently approved by Council on January 29, 2013.
- b) The Terms of Reference for Phases 2-4 of the NHN Study was approved by Council on September 25, 2012, and the consulting contract for the corresponding Request for Proposal (RFP) was awarded on January 29, 2013. The work plan for Phases 2-4 of the NHN Study has been underway since May 2013 and this report is one of the last steps in the process leading to the finalization and approval of the Natural Heritage Network Study.
- c) The City and TRCA staff have been working with the landowners and their consulting teams to discuss data sharing and data interpretation. This process is on-going and has led to an agreement on the approach to undertaking the Secondary Plans and on the terms of reference for the Subwatershed Studies. The data exchanged to date and the on-going consultation will satisfy the test of policy 10.1.1.2 which requires, *“the submission by the landowners within the ROPA 2 amendment area of information in a format and at a level of detail consistent with the TRCA, York Region and City of Vaughan policies”*.

One of the potential outcomes of the Natural Heritage Network Study was amendments to VOP 2010. Such amendments would address any policy deficiencies in the VOP 2010 and reflect any potential changes in the system boundaries and a refinement of the Enhancement Areas. As a result, a draft amendment to VOP 2010 has been prepared to implement the findings of the Natural Heritage Network Study to modify Schedule 2 and relevant policies in Section 3.2, “Components of Vaughan’s Natural Heritage Network”, and Section 3.3, “Features of the Natural Heritage Network”. Schedules may also be added to delineate natural features according to Section 3.3, “Features of the Natural Heritage Network”.

3. Public Consultation Strategy

The public consultation approach identified key stakeholder groups as well as the general public to provide opportunities to participate in the development of Vaughan’s NHN. The following key messages were emphasized.

- Balancing urban growth and natural heritage conservation is important to Vaughan’s long-term development, and can be achieved in part through the NHN.
- The community engagement process will provide stakeholders and members of the public with the opportunity to participate in the development of Vaughan’s NHN. The feedback collected through the engagement process will be used to inform decision-making as the NHN Study progresses.
- Everyone’s voice is important. The City wants to hear from as many people as possible.

The following activities have taken place comprising the public consultation approach.

a) Targeted Stakeholder Meetings

Meetings were held with landowners (and their agents) of lands that will develop to provide an update on the NHN Study. The main action item from the meetings was to share information and discuss data interpretation in technical meetings.

Two stakeholder sessions were held for a range of interested parties including representatives of utilities, public agencies, and environmental organizations. A session was also held for internal staff to update the consulting team on related projects, such as for infrastructure, parks and other matters related to asset management.

- September 19, 2012 and October 10, 2012 – Individual meetings with landowners and agents for Blocks 27, 41, 40/47, 55, 59 and 60.
- September 19, 2012 – Evening meeting for community consultation at Vellore Hall.
- September 20, 2012 - Evening meeting for community consultation at Vaughan City Hall.
- October 19, 2012 - Presentation by City staff to BILD at offices of Cole Engineering.
- October 21, 2013 – Community consultation including mostly representatives of public commenting agencies and utilities.
- October 29, 2013 – Presentation by the City's consultants to City staff.
- February 24 to 26, 2014 - Individual meetings with landowners and agents for Blocks 27, 41, 34/35, 55, 59 and 60.
- March 3, 2014 – Community consultation with environmental not-for-profit organizations.
- March 24, 2014 – Meeting with City staff and Sustainable Vaughan.
- March 27, 2014 – Presentation by the City's consultants and City staff to the Kleinburg and Area Ratepayers Association.

b) First Nations

The City of Vaughan contacted First Nations and Metis organizations by telephone and E-mail according to the protocol in the draft York Region First Nation and Metis Consultation Tool. The Consultation Tool is a component of Amendment 6 to the York Region Official Plan, including the York Region Archaeological Management Plan, adopted February 20, 2014, establishing specific policies to ensure the responsible management of archaeological resources, as required by Provincial policy and legislation.

The Consultation Tool includes a contact database with over 40 individual contacts for 14 First Nation or Metis organizations. The following consultation meetings were arranged based on the responses to the City's correspondence.

- March 26, 2014 – Presentation by City staff to Williams Treat First Nation at Chippewas of Scugog Island First Nations.
- April 28, 2014 – Tele-conference call with Huron Wendat First Nation.

c) Public Meetings

The meeting of the Committee of the Whole (Public Hearing) represents the seventh public meeting on the NHN Study from 2012 to 2014. Four of the public meetings were structured as an open house or community forum. The last two public events on November 13, 2013 and May 22, 2014 were structured to provide more interactive discussion by setting up break-out stations for smaller group discussions. A list of all public meetings is provided below.

- June 28, 2012 – Open House at City of Vaughan for Phase 1;

- October 4, 2012 – Open House at City of Vaughan for Phase 1;
- December 12, 2012 – Committee of the Whole (Working Session) presenting findings of Phase 1 of the NHN Study;
- November 13, 2013 – Community Forum at City of Vaughan for Phases 2-4 in conjunction with the City's Community Climate Action Plan;
- December 3, 2013 - Committee of the Whole (Working Session) presenting an update on progress on Phases 2-4;
- May 22, 2014 – Open House for Phases 2-4; and
- June 17, 2014 – Committee of the Whole (Public Hearing) presenting the final consulting team report at a Statutory Public Meeting.

d) Interactive Information and Updates

Prior to the Community Forum on November 13, 2013, the following materials were made available on the City's project web site and by E-mail notification.

Newsletter and Notification of Public Meeting

An e-mail was sent to the broad distribution list established through the Official Plan review process and revised in Phase 1 of the NHN Study with a notification of the Public Meeting and Issue #1 of the NHN Newsletter.

Interactive Maps in Adobe Acrobat Format

Consistent feedback from the public in Phase 1 of the NHN Study was to provide NHN information as map products, ideally as interactive data through a Geographic Information System (GIS). While the City is not able to provide interactive GIS data, the consulting team provided maps in Adobe Acrobat format with layers that can be turned off and on. While only a subset of data compiled in Phase 1 could be displayed in the Adobe Acrobat maps, it provides the opportunity for input into setting priorities for modifications to the NHN.

Online Survey

An online survey has the objective to seek input from the public about areas of importance and/or priorities for conservation for the NHN. The survey is structured in three parts: Part A seeks input on the broad vision and goals of the NHN; Part B provides illustrative examples of ecosystem targets intended to generate qualitative feedback about specific areas and/or ecological themes of importance; and Part C invites the respondent to stay connected to the process.

Twitter Messages

Messages sent through the City's Twitter feed were coordinated with the Community Climate Action Plan.

e) Summary of Landowner Feedback: New Community Areas and Designated Development Blocks

As noted in paragraph a) above, a number of meetings took place in February 2014 with the landowner's and their agents in respect to the preparation of the Natural Heritage Network Study. These owners represented a substantial portion of the blocks for which development approvals are on ongoing or imminent within the headwater drainage areas of the City. This information assisted in informing the development of the NHN Study and the resulting policy response. The following is a synopsis of the matters discussed:

- Field observations of the City's consulting team regarding headwater drainage features (HDFs) and significant wildlife habitat was shared with the landowners that provided permissions to enter properties.

- There was general agreement that the Draft Significant Wildlife Habitat Ecoregion Criteria provided by the Ministry of Natural Resources are appropriate to determine thresholds for significant wildlife habitat. There were no disagreements with the findings of the City's consultants regarding areas of significant wildlife habitat. Areas of amphibian linkages are recognized as notional and would be dependent on more detailed studies as part of obtaining development approvals.
- It is recognized that headwater drainage features (HDFs) evaluations are now a standard requirement of environmental assessments for development approvals. There was a suggestion from landowners and their agents that HDFs evaluated for "conservation" (rather than "protection" or "mitigation") could include options to integrate the hydrological functions into stormwater management facilities. The City and City's consultants indicated that, for the purposes of the NHN Study, HDFs evaluated for "conservation" are intended to remain as features and be integrated into the NHN or open space system.
- There was discussion of the available data regarding flow regime and thermal regime to determine permanent, intermittent and ephemeral streams. City staff and the City's consultants described that there is insufficient information to categorize all drainages and that studies are demonstrating that decisions about drainages require site-specific information. Hence, all drainages that are mapped are included in the Core Features as a precautionary approach.
 - Landowners and their agents commented that information provided according to the appropriate standards and procedures and a suitable level of detail should be incorporated into the findings of the NHN Study. This feedback was considered by the City and the mapping of some HDFs as Core Features of the NHN was changed based on a comparison of the HDF evaluation undertaken by the City's consultants and the HDF evaluation provided by the landowners, as described in more detail in this staff report in the section on headwater drainage features.
 - The HDF assessment was also discussed in the broader context of planning principles for efficient urban design and the need for alternative engineering design standards, such as for low impact development measures and/or green infrastructure.
 - Aspects of the HDF evaluation were discussed, including: interpretation of upstream connectivity incorporated into the assessment; and assessing downstream condition (discharge inverts and elevation) to understand how to preserve hydrologic functions.
- It was identified that the watercourse data used for the NHN Study includes inconsistencies and is outdated. The City and the City's consultants recognize the need to correct information where information is clear, such as from development approvals, but that the watercourse data is the best that is available.
- The rationale for using a 30 metre buffer to stream reaches, for those stream reaches not in a defined valley according to the 'crest of slope' data, was explained by City staff and the City's consultants and is based on the scientific literature that a 30 metre naturally vegetated buffer is a minimum for attenuating pollutant inputs and erosion.
- The 'crest of slope' digital layer provided by the TRCA was considered suitably accurate for the purposes of the NHN mapping. It was understood by landowners, City staff and the City's consultants that valley limits would be more accurately

defined based on site visits and appropriate studies as part of a development application. As a result, there was discussion of including a caveat on any map product that displayed the 'crest of slope', such as the notation, "To be confirmed on a site specific basis".

- The decision was questioned to include a 30 metre minimum vegetation protection zone to all wetlands, including non-evaluated wetlands as well as Provincially Significant Wetlands. City staff and the City's consultants responded that VOP 2010 policy 3.2.3.4 includes all wetlands as Core Features, but feature-based policies (VOP 2010 policy 3.3.2.1 and 3.3.2.2) provide flexibility to assess non-evaluated wetlands for significance.
- There was some discussion of the Critical Function Zone (CFZ) for wetlands. City staff and the City's consultants indicated that a CFZ other than a 30 metre vegetation protection zone for wetlands not be incorporated into the Core Features. A CFZ can be a component of NHN scenario testing. It is also a component of an EIS or MESP as part of the analysis of adjacent lands to wetlands, considering wetland attributes and functions such as wetland size, species present (and their habitat requirements), and existing habitat surrounding the wetland.
- The presentation by the City's consultants that waterbodies are to be included as Core Features raised a question about protection of such features in the Provincial Policy Statement (PPS) for waterbodies. This prompted City staff and the City's consultants to review the PPS and York Region Official Plan policies regarding "surface water features".
- Improvement to the NHN in terms of quality or condition was discussed as opposed to areal extent. The City and City's consultants noted that a recommendation will be made to pursue a habitat compensation protocol so that the City develops a framework to assess habitat area compensation versus restoration compensation (in the existing NHN).
- Site-specific data was discussed regarding features such as woodlands and valleylands, including mapped elements such as Enhancement Areas. Changes were made to Enhancement Areas consistent with a sharper focus of the criteria for Enhancement Areas, which is subsequently described in the consulting team report.
- The process to amend the VOP 2010 was discussed: adding map products/schedules to delineate features as recommended by the Province and York Region; and new policy language may be required to recognize what elements of Schedule 2 are more flexible.

4. Phase 1 of the Natural Heritage Network Study

Phase 1 of the NHN Study was completed in November 2012 and a report was provided to Committee of the Whole (Working Session) in December 2012. The expectations set out in the Terms of Reference for Phase 1 of the NHN Study were met. A comprehensive GIS database was developed and delivered to the City, recommendations to revise the Environmental Management Guideline were provided, and recommendations for field investigations assisted not only to identify sample sites, but also to finalize survey protocols.

One of the early findings of the effort to compile a comprehensive GIS database included the identification of data gaps. In particular, recent approvals of some developments have resulted in changes to feature boundaries, but the available environmental information layers show previous land classifications. Many of these situations for woodlands, wetlands and ANSIs have been corrected in Phase 1, but these situations will continue to be identified through review and

consultation in Phase 3 of the Study. Such data discrepancies highlight the need for more detailed and refined GIS layers for Vaughan and an appropriate protocol to track changes.

The development of NHN targets and an assessment of the NHN against the targets to understand the biodiversity contribution of existing natural areas were identified as requiring further work in Phases 2 and 3. The key lesson learned in Phase 1 was to undertake spatial modelling of enhancement area options to identify and test NHN targets in an iterative analysis. This will be the primary task of the consulting team in the coming months.

5. Phases 2 to 4 of the Natural Heritage Network Study

The Terms of Reference for Phases 2 to 4 essentially described elements of work to refine the NHN criteria through field investigations (Phase 2) and data analysis, synthesis and recommendations (Phase 3). Phase 4 was described in the Terms of Reference specifically to develop a long-term land securement strategy. These work plan elements are summarized below.

a) Field Investigations

Field investigations were undertaken between April 2013 and September 2013. As described in the Terms of Reference for the NHN Study, the field investigations were targeted to sampling headwater drainage features and lands potentially meeting criteria for Significant Wildlife Habitat as defined in the PPS.

i. Headwater Drainage Features

Of the 57 headwater drainage feature (HDF) sample sites visited in the Spring of 2013, 12 were re-visited to sample Summer conditions according to the standards in the Ontario Stream Assessment Protocol and "Evaluation, Classification and Management of Headwater Drainage Features Guideline" prepared by the Toronto and Region Conservation Authority and Credit Valley Conservation (TRCA 2013). The results of the HDF assessment are incorporated into revisions of the NHN boundaries in Schedule 2 of the VOP 2010 only in cases where: (a) information provided by landowners was completed according to the HDF guideline (TRCA 2013) noted above; and (b) the assessments of the landowner and the City's consulting team were in agreement and resulted in a management recommendation in which the drainage feature is classified as "mitigation". In such cases, the reaches were not included in the Core Features of the NHN.

It was determined that a sub-sample of drainage features assessed according to the HDF guideline document (TRCA 2013) could not be used effectively to assign a conservation ranking or management recommendation to other drainage features that were not assessed in the field. Rather, the use of the HDF guideline (TRCA 2013) provides information which can be used to inform the Terms of Reference for a Master Environment and Servicing Plan (MESP) or Environmental Impact Study (EIS) as part of the development review process. The headwater drainage features can then be assessed and confirmed as part of these processes.

ii. Significant Wildlife Habitat

Breeding bird sampling was undertaken targeting open meadow habitat and forest clusters. A total of 50 sites were sampled two times following Breeding Bird Atlas protocols. A total of 71 stations were sampled to assess potential amphibian breeding habitat and sites were sampled following Marsh Monitoring Protocols with each station surveyed three times. Bluff communities were visited to search for potential colony nesting bird habitat and to look for potential significant plant communities such as prairie. A total of 41 bluff communities were visited.

The thresholds for confirming significant wildlife habitat (SWH) were based on the Draft SWH Ecoregion 6E Criterion Schedule and the Draft SWH Ecoregion 7E Criterion Schedule (OMNR 2012). Results of the 2013 field work and flora and fauna data provided by the TRCA were used as inputs to the SWH criteria. The following constitute SWH identified in the City of Vaughan according to the methods described above:

- Amphibian breeding habitat - woodland;
- Amphibian breeding habitat - wetlands;
- Open country breeding bird habitat;
- Open country breeding bird habitat – Special Concern species;
- Open country breeding bird habitat – Threatened grassland species (candidate SWH);
- Shrub/early successional breeding bird habitat;
- Shrub/early successional breeding bird habitat and Threatened grassland species; and
- Woodland area-sensitive breeding bird habitat.

It is important to note that the field investigations and data analysis had a focus on amphibian and breeding bird species. An MESP or EIS in support of a development application may identify other site-specific examples of significant wildlife habitat described in the MNR criterion schedules.

b) NHN Criteria and Refinement

i. NHN Scenarios and Ecosystem Targets

Section 9 of the consulting team report (Attachment 1) provides an assessment of baseline conditions of the NHN in relation to ecosystem targets derived from the Environment Canada report, "How Much Habitat is Enough?" Several approaches to scenario testing are described in the consulting team report. The testing was not specifically calculated to determine the potential incremental improvement of the NHN towards the ecosystem targets for each possible scenario.

With a comprehensive GIS database in place as a deliverable of the NHN Study, the City can work with agency partners, such as the TRCA, to identify restoration areas and calculate the potential habitat improvements to the NHN. This will assist in setting priorities for land stewardship and/or securement efforts and provide an understanding of the budget requirements and likelihood of securing external funding for such stewardship and/or securement efforts.

ii. Core Features

Criteria are provided in the consultants' final report (Attachment 1) for the refinement of Core Features. The limits of all Core Features were reviewed based on the available digital data and results of field investigations, resulting in many corrections to align Core Feature boundaries with development approvals. The inclusion of significant wildlife habitat based on results of the 2013 field investigations and exclusion of woodlands less than 0.5 hectares mark the major changes to the Core Features. The changes do not require amendment to the policies of Chapter 3 (Environment) of the VOP 2010.

Inclusion of all watercourses and waterbodies as Core Features is a modification to Schedule 2. Reaches of watercourses were not included in the Core Features in the situation described above where: (a) information provided by landowners was completed according to the HDF guideline (TRCA 2013); and (b) the assessments of the landowner and the City's consulting team were in agreement and resulted in a management

recommendation that the drainage feature be categorized for “mitigation”. As a result, amendments are recommended to the policies in Chapter 3 in three specific areas to ensure that there is the flexibility to assess surface water features, particularly watercourses and waterbodies, to properly determine their significance through appropriate studies at the time of the development approval process. The addition of four new definitions is also recommended: “Sensitive Surface Water Features”; “Waterbody”; “Watercourse”; and “Headwater Drainage Feature”. The recommended amendments to the VOP 2010 are described below in the subsection of this report titled, “Implementing the Findings of the NHN Study”.

City staff also reviewed the Core Features delineation in comparison to the following City information:

- Official Plan Amendments at secondary plan scales (e.g. OPA 600, OPA 601, OPA 604, OPA 610);
- Approved Block Plans and Plans of Subdivision outside of Block Plan applications;
- Current zoning map;
- City of Vaughan ‘Parks, Open Spaces, Woodlots, Stormponds and Facilities Map’ (March 2014) (for internal use only); and
- Review of all VOP 2010 modifications presented to Council in staff reports of July 28, 2010, September 12, 2011 and April 3, 2012.

iii. Enhancement Areas

Criteria for Enhancement Areas are described for three categories of potential enhancement to the NHN: corridors or linkages; open country habitat; and interior woodland habitat.

Linkage Enhancement Areas: Options for viable north-south linkages, other than the main Humber River, East Humber River and Don River, are limited. As a result, it is proposed to delineate the viable north-south linkages on the revised Schedule 2 as Enhancement Areas located along the Robinson Creek corridor and the upper Purpleville Creek corridor. No east-west linkages have been identified in the NHN Study.

Open Country Enhancement Areas: Open country breeding bird habitat has been identified as significant wildlife habitat in the City of Vaughan in several locations. Grassland species have also been observed and/or recorded in shrub/early successional habitat, including lands already in public ownership. In order to improve the likelihood of persistence of open country breeding birds in the City as development proceeds, two specific areas are identified as Enhancement Areas. One area includes the former Keele Valley landfill and City of Vaughan landfill site, which are being used by grasslands species, but not at a threshold of species diversity and/or abundance to categorize the areas as significant wildlife habitat. As these sites are not able to be used for urban development in the immediate planning horizon, they represent an interesting opportunity to manage the sites to improve grassland habitat in the City of Vaughan.

Interior Woodland Habitat Enhancement Areas: Enhancement Areas to improve forest interior conditions are not specifically delineated on the revised Schedule 2. There are a variety of configurations that can enhance woodland interior habitat and a range of approaches that can be employed to engage landowners. As a result, criteria for enhancement of woodland interior is described in the consulting team report, but not mapped given the variety of possible options. Although only 0.5% of Vaughan’s land base can be considered to provide interior woodland conditions,

there are several critical areas for area-sensitive woodland breeding birds identified as significant wildlife habitat. This provides a focus for efforts to improve the likelihood of species persistence related to woodland interior habitat.

c) Conservation Land Securement Strategy

The public consultation venues provided the opportunity to introduce a range of land securement options. The Conservation Land Securement Strategy provides a framework document that the City can use to consider the feasibility of land securement options together with ecological criteria when evaluating enhancement and restoration priorities. It identifies professional standards of practice that the City can follow in partnering with landowners and agencies in conservation land securement as a complement to securing lands into public ownership through the development application and review process.

6. Implementing the NHN Study Findings

a) Study Process

A Technical Report will be provided to a future Committee of the Whole meeting summarizing the evaluation of feedback received during the public comment period and any recommended changes to the:

- consulting team report on the NHN Study findings and recommendations;
- consulting team report on the Conservation Land Securement Strategy;
- Environmental Management Guideline; and
- Policies and schedules of the VOP 2010.

b) Recommended Policy and Schedule Amendments to VOP 2010

The consulting team report, marking the completion of Phases 2 to 4 of the NHN Study, includes a policy evaluation of each criterion used to identify elements of the NHN (see Section 7 of Attachment 1). Existing policies in Chapter 3 (Environment) of the VOP 2010 regarding many natural features, such as woodlands, wetlands, valleylands and significant wildlife habitat, are not recommended to be amended. Existing policies clearly articulate the intent to protect such features while allowing for some flexibility in their final delineation, subject to appropriate studies, should the lands be part of a development application. Since the NHN Study recommends a more precautionary approach to the delineation of watercourses and waterbodies, it is recommended that policies be added to allow for the assessment of the significance of such features based on appropriate studies.

i. Recommended Amendments to VOP 2010

The following amendments to the policies of the VOP 2010 are recommended.

- Add the following text regarding watercourses as policy 3.3.1.5 in Section 3.3.1 of the VOP 2010:

That *watercourses* may need to be confirmed by the City and the Toronto and Region Conservation Authority through field investigation. *Headwater drainage features* (HDFs) shall be identified and managed in accordance with TRCA's "Evaluation, Classification and Management of Headwater Drainage Features Guideline", as may be updated.

- Re-number policy 3.3.1.5 to 3.3.1.6 and re-number policy 3.3.1.6 to 3.3.1.7
- Add the following definitions to Section 10.2.2 (Definitions) of the VOP 2010:

Headwater Drainage Feature (HDF). An ill-defined, non-permanently flowing drainage feature that may not have a defined bed or banks; they are zero-order intermittent and ephemeral channels, swales and rivulets, but do not include rills or furrows (also see *watercourse*). HDFs that have been assessed through TRCA's Evaluation, Classification and Management of Headwater Drainage Features Guideline, as requiring protection, conservation or mitigation, are subject to TRCA's Regulation.

Watercourse. An identifiable depression in the ground in which a flow of water regularly or continuously occurs (*Conservation Authorities Act*) - also see *headwater drainage feature*.

- Amend VOP 2010 policy 3.2.3.4(h) to include the term 'sensitive surface water features' as follows, which is consistent with the York Region Official Plan (ROP 2010) policy 2.2.1(m):

Sensitive surface water features (including waterbodies), seepage areas and springs not already captured in *valley and stream corridors*, and a 30 metre minimum vegetation protection zone for those seepage areas and springs in the **Oak Ridges Moraine Conservation** and **Greenbelt Plan Areas**.

- Amend policy 3.3.5.1 by adding a subparagraph as follows, which is consistent with ROP 2010 policy 2.2.4:

Prohibiting development and site alteration within *sensitive surface water features* and their vegetation protection zone unless it is demonstrated through an environmental impact study that the development or site alteration will not result in a negative impact to the ecological and/or hydrological functions of the *sensitive surface water feature*.

- Add the following definitions from the ROP 2010 to Section 10.2.2 (Definitions) of the VOP 2010:

Sensitive Surface Water Features. Water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.

Waterbody. Lakes, woodland ponds, etc. which provide ecological functions.

ii. Recommended Amendments to Schedules

Comments from York Region and the Province as part of the Official Plan Review process leading to the VOP 2010 identified the need to include schedules of natural features in addition to the composite 'system' (the NHN) delineated on Schedule 2. It is recommended that three schedules be added to delineate specific features, as shown in Section 8 of Attachment 1:

- Hydrologic Features and Valleylands as Schedule 2A to delineate aquatic habitat;
- Woodlands as Schedule 2B to delineate terrestrial habitat; and
- Significant Wildlife Habitat as Schedule 2C.

Schedules in the VOP 2010 already delineate other specific components related to natural heritage, which are related to designations rather than features, and include: Schedule 3 – Environmentally Sensitive Areas (ESAs) and Areas of Natural and Scientific Interest (ANSIs); Schedule 4 – Oak Ridges Moraine Conservation Plan (ORMCP) and Greenbelt Plan Areas; Schedule 6 – Aquifer Vulnerability (addressed in the ORMCP policies); and Schedule 7 – Landform Conservation (addressed in the ORMCP policies). Hence, the recommended Schedules 2A to 2C are more feature-based and meet the intent of the comments from the Region and the Province to complement the NHN with feature-based mapping.

The Provincial Policy Statement identifies habitat of Endangered and Threatened species and Fish Habitat as natural features. Protection of species at risk as required by the Federal Species at Risk Act (2002) and Provincial Endangered Species Act (2007), including the protection of habitat for Endangered and Threatened species and Fish Habitat, is addressed through the policies of the VOP 2010 in accordance with appropriate federal and/or provincial legislation. As a result, NHN criteria are not established specifically to map the habitat of Endangered and Threatened species and Fish Habitat, although such habitat is often included in the natural features depicted on the proposed Schedules 2A to 2C.

c) Work Plan for the Long-Term Maintenance, Restoration and Improvement of the NHN

Improving the NHN over time requires three general areas of effort: securing land; maintaining or improving habitat conditions through stewardship approaches; and identifying opportunities to align other City efforts with the maintenance and improvement of the Natural Heritage Network, such as those related to parks planning and infrastructure (i.e. more sympathetic infrastructure such as green infrastructure design for stormwater and minimizing impacts of hard infrastructure such as roads).

i. Land Securement

The development review process provides a proven mechanism for determining whether lands should be brought into public ownership to protect the Natural Heritage Network. The results of the NHN Study will improve the City's ability to process development applications once the following tools are finalized:

- A GIS database of features and attribute information related to the NHN;
- Revised Environmental Management Guideline to set the Terms of Reference for an MESP and/or EIS; and
- Approved amendments to the policies and schedules of the VOP 2010.

In addition, City staff recommend that a habitat compensation protocol be investigated. Policies in the VOP 2010, such as policy 3.2.3.11 requiring that modifications to Core Features provide documentation to “include measures to maintain overall habitat area and enhance ecosystem function”, are intended to allow flexibility in NHN delineation while providing for overall improvement of the NHN. A habitat compensation protocol will provide more specific guidance to determine whether such compensation is appropriate and how to ensure an overall NHN improvement.

The Conservation Land Securement Strategy (Attachment 2) identifies professional standards of practice that the City can follow in partnering with landowners and agencies in conservation land securement as a complement to bringing lands into public ownership as a condition of development approval, as it is practiced for hazard lands, valley and stream corridors, ESAs and ANSIs. It is recommended that City staff investigate conservation land securement opportunities as a way to identify a Terms of Reference,

budget, external funding sources, partnership opportunities, and staffing implications in a future report to Council. Outreach to landowners is a short-term step that the City can undertake as a way to determine the role the City can provide in conservation land securement.

ii. Land Stewardship

The City already engages in stewardship actions through the work of departments such as Parks and Forestry Operations. The TRCA is the City's main partner in stewardship as it has staff and budget dedicated to actions such as habitat restoration, invasive species management, and assisting with the Ontario Managed Forest Tax Incentive Program. The investigation of actions to implement Conservation Land Securement should also consider priority actions, such as restoration opportunities, to complement existing partner programs.

iii. Integrating Natural Heritage, Open Space and Green Infrastructure

It was necessary for the NHN Study to focus on refinements to the NHN mapping in relation to ecosystem targets. However, natural heritage protection also provides community amenity areas (trails, vistas, etc.) and ecosystem services (managing stormwater, cleaning air, storing carbon, etc.). City staff should continue to collaborate to identify specific actions that have benefits across multiple departments, such as alternative engineering design standards for green infrastructure (i.e. low impact development measures) and implementing the Sustainability Performance Metrics to reduce ecological footprints of development applications.

Relationship to Vaughan Vision 2020/Strategic Plan

The Natural Heritage in the City report is consistent with the Vaughan Vision 2020 Strategic Plan, through the following initiatives, specifically:

Service Excellence:

- Lead & Promote Environmental Sustainability

Management Excellence:

- Manage Growth & Economic Well Being
- Demonstrate Leadership & Promote Effective Governance

This report is consistent with the priorities previously set by Council.

Regional Implications

Policies in the ROP 2010 support the effort of local municipalities to identify local greenlands systems. York Region staff have been consulted during the study process. Ultimately, York Region will be the approval authority for any amendments to the VOP 2010, adopted as a result of this study.

Conclusion

The consulting team has delivered the Natural Heritage Network Study report. This Report to the Committee of the Whole and Council summarizes the findings of the Study for the purposes of obtaining public comment prior to its finalization with particular emphasis on:

- Criteria for refinement of the Core Features and Enhancement Areas of the NHN; and
- Recommended modifications to select policies of Chapter 3 (Environment) and Schedules of the VOP 2010.

Therefore, it is recommended that this report be received and that any issues raised at the Public Hearing, or raised in subsequent correspondence, be addressed by the Vaughan Planning Department's Policy Planning Division in a future Technical Report to the Committee of the Whole.

Attachments

1. Phase 2-4 Natural Heritage Network Study, City of Vaughan. Prepared by North-South Environmental Inc.
2. City of Vaughan Conservation Land Securement Strategy. Produced by Orland Conservation.
3. Public Consultation Feedback and City Response.

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Phase 2-4 Natural Heritage Network Study City of Vaughan

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Table of Contents

1.0	Introduction	1
1.1	Outline of the Natural Heritage Network Study.....	3
2.0	The Changing Environment of Southern Ontario.....	5
2.1	A “Systems Approach” to Natural Heritage Network Planning	5
2.2	The Components of a Natural Heritage Network.....	7
3.0	Community Engagement.....	9
3.1	Community Stakeholder Workshops	9
3.2	City of Vaughan Staff Sessions.....	9
3.3	Community Forum.....	9
3.4	Online Public Questionnaire.....	10
3.5	Landowner Meetings.....	10
3.6	York Region Advisory Liaison Group	10
4.0	Field Studies Conducted in Support of the NHN Study	12
4.1	Frog Call Surveys.....	12
4.1.1	Selection of Amphibian Survey Sites	12
4.1.2	Amphibian Survey Methods.....	12
4.2	Headwater Drainage Feature Surveys	12
4.2.1	Headwater Drainage Feature Assessment	13
4.3	Breeding Bird Surveys	16
4.3.1	Selection of Breeding Bird Survey Sites	16
4.3.2	Breeding Bird Survey Methods	18
4.3.3	Delineation of Patches.....	20
4.4	Bluff Surveys.....	20
5.0	Analysis of Field Data.....	21
5.1	Significant Wildlife Habitat.....	21
5.1.1	Analysis of Amphibian SWH (Woodland and Wetland).....	21
5.1.2	Significant Wildlife Habitat Based on Breeding Bird Species.....	22
5.1.3	SWH for Area Sensitive Open Country Breeding Birds	23
5.1.4	SWH for Special Concern Open-Country Breeding Birds	24
5.1.5	Habitat for Threatened Area-sensitive Grassland Species	24
5.1.6	SWH for Shrub/Early Successional Breeding Birds.....	24
5.1.7	SWH for Area-Sensitive Woodland Breeding Birds	24
5.1.8	SWH for Special Concern and Rare Woodland Species	25
5.2	Headwater Drainage Feature Analysis.....	25
6.0	Digital Data Available in the GIS Database.....	27
7.0	Criteria used to Identify a NHN for Vaughan.....	29
7.1	Woodlands	29
7.2	Wetlands	30
7.3	Crest of Slope	31
7.4	Watercourses.....	31
7.5	Waterbodies.....	33
7.6	Areas of Natural and Scientific Interest	35
7.7	Environmentally Significant Areas.....	35
7.8	Significant Wildlife Habitat – Amphibians	35



7.9 Significant Wildlife Habitat - Birds	36
7.10 NHN Enhancement Areas	36
8.0 Proposed Scedule Modifications.....	39
9.0 Scenario Testing of Vaughan’s NHN	45
10.0 Land Stewardship Strategy	50
11.0 Conclusions and Next Steps.....	51
12.0 References.....	52

List of Tables

Table 1. Hydrology classification from Table 4 of HDF Guidelines (TRCA 2013).....	14
Table 2. Riparian Vegetation classification from HDF Guidelines (TRCA 2013).	15
Table 3. Criteria used to evaluate amphibian woodland and wetland SWH.	22
Table 4. Significant Breeding Bird Habitats noted within the Vaughan Study Area	23
Table 5. Digital Data available in the City of Vaughan digital data set.....	27
Table 6. Scenario testing of NHN baseline conditions	47

List of Figures

Figure 1: City of Vaughan Natural Heritage Network (VOP 2010).....	2
Figure 2: TRCA records of species diversity in the Greater Toronto Area.....	6
Figure 3: Location of 2013 Headwater Drainage Feature field site assessments.....	13
Figure 4: Location of 2013 point count surveys for breeding birds in Vaughan.....	19
Figure 5: Schedule 2 Natural Heritage Network	41
Figure 6: Schedule 2a Hydrologic Features and Valleylands	42
Figure 7: Schedule 2b Woodlands	43
Figure 8: Schedule 2c Significant Wildlife Habitat	44
Figure 9: Potential restoration areas within the Vegetation Protection Zone	48
Figure 10: Potential restoration areas to maintain ecological linkage.....	48
Figure 11: Potential restoration areas within valleylands.....	49
Figure 12: Potential restoration areas within the Greenbelt Natural Heritage System... ..	49

List of Appendices

Appendix 1: Community Engagement.....	54
Appendix 2: Significant Wildlife Habitat Criteria	64



City of Vaughan NHN Phase 2-4 Study Report

1.0 INTRODUCTION

Vaughan Vision 2020, the City of Vaughan's Strategic Plan, begins by acknowledging the rapid pace of change in the City.

Vaughan is one of Canada's fastest growing cities, with a population of over 250,000. It is projected that the number of residents will increase to 430,000 by 2031.

The next 25 years will see Vaughan beginning the transition from a growing suburban municipality to a fully urban space. This type of transition will require long-term thinking about how best to accommodate and make the most of new opportunities.

Vision 2020 includes a vision and strategic goal that acknowledges the need to value and manage the natural environment.

Vision: A city of choice that promotes diversity, innovation and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible and sustainable

Goal: Lead and Promote Environmental Sustainability

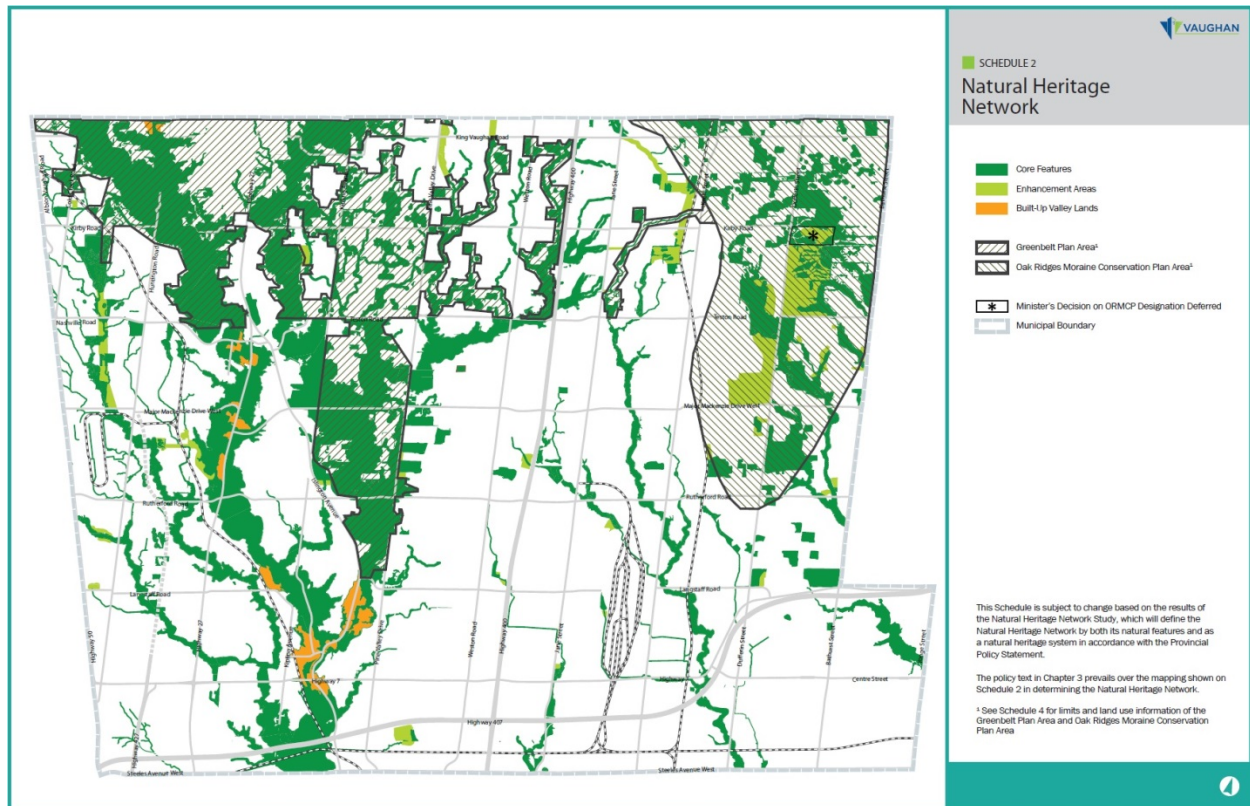
Recognizing the pace of growth in urban areas, the Province of Ontario passed the Places to Grow Act (2005) and prepared the Growth Plan for the Greater Golden Horseshoe to provide direction and tools for municipalities to manage growth to optimize benefits and to minimize negative impacts. This includes planning for social, economic and environmental needs. The revised Provincial Policy Statement (PPS 2014) now includes a policy directing municipalities in southern Ontario to identify natural heritage systems "recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas, and prime agricultural areas*".

Vaughan Tomorrow is the City's growth management program and comprises: Vaughan Vision 2020; Green Directions Vaughan, the City's first Community Sustainability and Environmental Master Plan; and the new Vaughan Official Plan 2010 (VOP 2010), adopted by Council on September 7, 2010 and subject to further modifications on September 27, 2011, March 20, 2012 and April 17, 2012, and approved with modifications by York Region council on June 28, 2012.



The VOP 2010 includes a Council adopted Natural Heritage Network (NHN) that represents an interconnected system of core natural features, enhancement areas and built-up valley lands to protect natural heritage features and ecological functions in a healthy and resilient system ensuring long term protection and management of Vaughan's native biodiversity. The Natural Heritage Network as currently defined in the VOP 2010 is shown in Figure 1.

Figure 1. City of Vaughan Natural Heritage Network (VOP 2010)



The NHN performs the unique function of providing natural areas able to meet the habitat needs of native plant and animals that require high quality habitat for their long term survival. Many species (for example, Spring Peepers, Wood Thrush and Rose Twisted-stalk) cannot be found where there are high noise levels, vehicle exhaust, continuous light at night, poor water quality, barriers to movement, etc. that characterize more built-up urban areas.

The development of a NHN is therefore a long range environmental planning effort intended to protect the habitat necessary to sustain native plants and animals over the long term. The NHN is of particular importance in the context of ongoing urban development in Vaughan, particularly within new community areas.

The NHN is based on the Commitment to Environmental Stewardship as expressed in the VOP (2010):



The natural environment is among Vaughan's most important and cherished assets. The Humber and western Don Valley systems are prominent on the City's landscape and the overall health of those systems is reliant on the stewardship provided by Vaughan. The watercourses, woodlands, wetlands and related open spaces and agricultural lands each have an important function in maintaining ecological vitality and diversity in the City. Protecting flood prone areas from inappropriate development is critical to ensuring public safety. Ensuring the quality of our air, water and soil is fundamental to maintaining overall environmental health. We must also recognize the impacts of climate change on our environment and plan for both mitigation and adaptation.

The NHN provides for the long-term health of Vaughan's natural environment for the benefit of present and future generations (VOP 2010). Achieving protection requires a "systems approach" that considers the importance of maintaining and protecting:

- **ecological features** in the environment such as woodlands, wetlands and watercourses, etc.;
- **ecological functions** of the environment such as water storage and water quality enhancement by wetlands, winter deer yards provided by dense cedar woodlands, amphibian breeding habitat in ephemeral forest ponds, open country or grassland habitat for birds provided by meadowlands, etc.; and
- **ecological interactions** that occur over varying scales of time and space such as animal predation and herbivory, the daily, seasonal and long term movement patterns of plants and animals, and the ecological role of natural disturbance mechanisms such as fire, wind, water, and disease, etc.

1.1 Outline of the Natural Heritage Network Study

The Natural Heritage Network Study is being undertaken to provide high quality mapping of ecological features in the City of Vaughan and to establish and apply a clear set of ecological criteria that define Vaughan's NHN. High quality mapping and clearly defined criteria will assist in achieving a consistent and transparent approach to land use planning that meets Vaughan's vision, goals and commitments to environmental sustainability.

Overall there are three main study objectives:

- Assess the biodiversity contribution and ecological functions of the existing NHN;
- Develop a GIS database of the NHN, its constituent parts, and relevant attribute information to provide a clear and transparent rationale for the NHN, which can be used in the development application process; and
- Prepare a strategy to enhance the NHN to meet select ecosystem targets.



NHN Phase 1 Study

The phase 1 study completed in December 2012 assembled the available natural heritage information into a digital geographic database and established a set of criteria to define the NHN based on provincial and municipal policies and guidelines (North-South 2012).

NHN Phase 2-4 Study

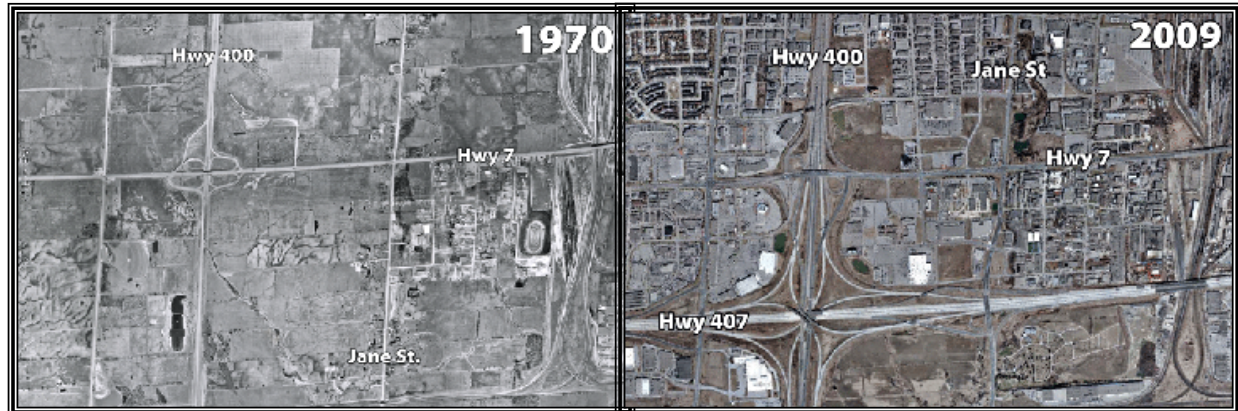
To meet these objectives there were four main study components in the phase 2-4 study:

- Field investigations that focus on Headwater Drainage Features (HDF) and Significant Wildlife Habitat (SWH);
- Develop a recommended approach to identify and map a Natural Heritage Network (NHN) for Vaughan;
- Prepare a Land Securement Strategy; and
- Develop and implement a Community Engagement Plan.

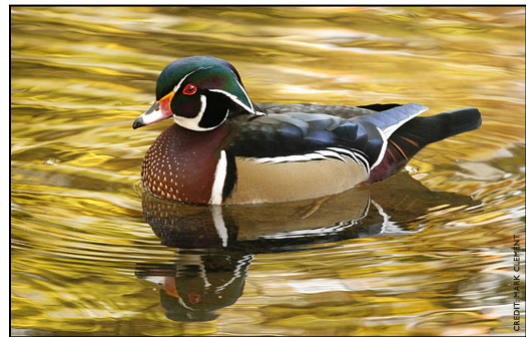


2.0 THE CHANGING ENVIRONMENT OF SOUTHERN ONTARIO

Over the past fifty years the extent and intensity of urban development has fundamentally changed the character of southern Ontario within an area extending from Oshawa to Hamilton and northward from Toronto to Newmarket. The change has occurred in large measure as urban development expanded into agricultural lands, which previously separated smaller towns and larger cities.



Over this same time period the approach to protecting natural areas within new areas of urban development has changed substantially. In the 1950's the approach was to maximize the area available for urban development by removing woodlands and wetlands and where possible putting watercourses in concrete channels that in some cases were buried. Through the 1960's and 70's greater effort was made to protect the most significant natural areas through Environmentally Significant/Sensitive Area programs, an approach described as protecting "islands of green". In the 1980's protecting natural areas began to take a "systems approach", considering the need for the protection of larger core protected areas and ecological corridors linking isolated natural areas; an approach requiring the protection of open fields and agricultural lands as "enhancement areas".



2.1 A "Systems Approach" to Natural Heritage Network Planning

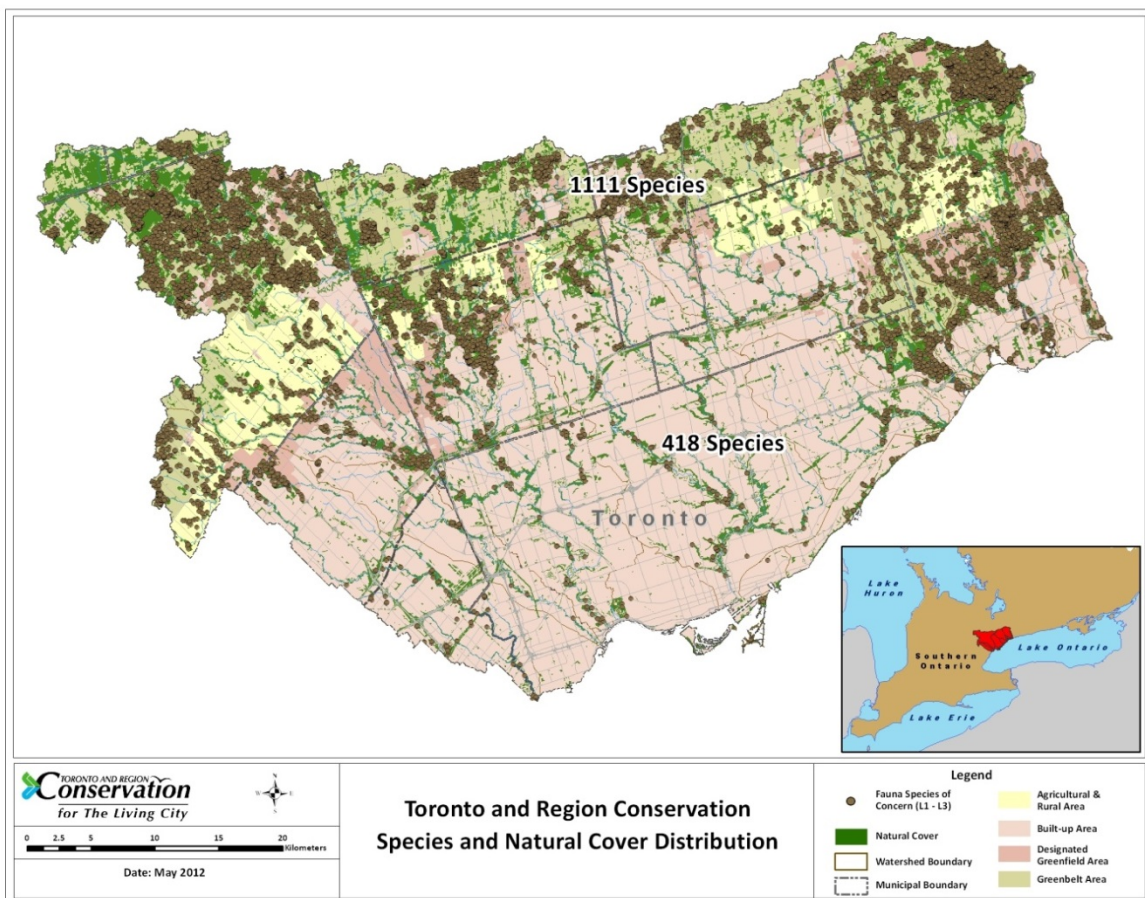
The protection of large, diverse, well connected habitat patches capable of sustaining populations of native plants and animals and facilitating natural movement patterns is the essence of a NHN. A fundamental tenet of biodiversity conservation is that a natural heritage system should be capable of protecting a full range of native plant and animal species and communities indigenous to an area, as well as the biological conditions that support them (Ontario's Biodiversity Conservation Strategy 2011). Increasingly NHN's are also being recognized for the many "ecosystem services" they



provide, such as tree canopies that provide shade and mitigate the heat generated by urban landscapes, groundwater infiltration, habitat for pollinators essential for agriculture, carbon storage to mitigate climate change, filtration of pollutants from air and water, water storage to mitigate flooding, and mental and physical human health benefits.

The identification of a NHN in areas undergoing land use change from rural to urban land uses is extremely important owing to the many substantial environmental impacts inherent in urban environments. In southern Ontario’s rural landscapes the plants and animals present are relatively stable, occupying and moving among the available habitat patches in the relatively “soft” agricultural landscape. When urbanization occurs, the agricultural landscape is dramatically transformed to homes, roads, commercial development, places of work, parking areas, etc. This creates a “hard” urban landscape with a variety of negative impacts which can lead to a decline in habitat quality and a reduction in plant and animal diversity. The Toronto Region Conservation Authority has recorded 418 of the more sensitive L1-L3 species in older urban areas of the Greater Toronto Area (GTA) and 1111 sensitive L1-L3 species (266% more) in more rural areas where urban development is less (Figure 2).

Figure 2: TRCA records of species diversity in the Greater Toronto Area



2.2 The Components of a Natural Heritage Network

The components of a NHN include **core areas**, **linkages** and **enhancements** identified at a variety of geographic scales including local scales (e.g. small habitat patches and local linkages between woodlands and wetlands) and regional scales (e.g. large habitat patches forming centres for biodiversity and regional scale linkages connecting to the Greenbelt and Oak Ridges Moraine). Recent studies (Chapa-Vargas and Robinson 2013, Cottam *et al.* 2009, Fabian Y. *et al.* 2013, Ritchie *et al.* 2009) show that landscapes with larger amounts of natural cover (*i.e.* the total amount of woodland, wetland, and open habitat) support higher biodiversity, suggesting a NHN should identify components (cores areas, linkages and enhancement areas) that achieve targets intended to protect a high percentage of natural cover within the landscape.

Core Areas

Core areas are remnant natural features such as woodlands and wetlands. They typically occur as “patches” on the landscape and may be very large (100 - 200 ha or more), or relatively small (1-2 ha). The significance or importance of a core area will depend primarily on its size, condition, extent of natural cover in the planning area (in landscapes of low natural cover, lacking large natural features, all core areas of any size may be important enough to include in a NHN), configuration (high interior-to-edge ratio are preferred over those with linear or convoluted shapes), diversity of communities, presence of Species At Risk or Conservation Concern, and areas providing habitat for species with very specific or demanding habitat requirements (e.g., colonial nesting birds or species requiring large areas of habitat). Core Areas often contain important hydrological areas such as headwaters, recharge areas, wetlands and discharge areas.

To ensure the long term protection of biodiversity it is important to identify very large Core Areas (50 to 200 ha) that are capable of sustaining viable populations of area-sensitive species. These large Core Areas have been referred to as “Centres for Biodiversity”. Environment Canada (2013) has provided guidance for the size of Core Areas needed to support a high diversity of native species. These large Core Areas act as “reservoirs” that facilitate re-colonization of smaller, marginal Core Areas in the NHN, where populations may be locally extirpated. In some landscapes, such large natural features may be lacking, and they may need to be created through identifying “Enhancement Areas” (see below).

Linkages

A distinguishing characteristic of a NHN is that linkage areas among Core Areas are identified to ensure remnant habitat patches are functionally connected to mitigate the impacts resulting from fragmentation and the barriers to movement that are an inherent part of urbanization. It is helpful to recognize that many species adapted to rural landscapes can migrate and disperse across agricultural fields, even though they may not appear as natural linear linkages. The identification of linkage functions is required to maintain, and where possible enhance, this connectivity. Preferably, linkages will be



identified along existing natural features (e.g., valleylands). However, in some cases, linkage functionality is achieved through the identification of “Enhancement Areas” (see below) that are restored to create suitable habitat.

Linkages may be of varying widths depending on their function. Major linkages that serve to connect features at a Regional or Provincial scale should be wide enough to incorporate habitat that allows the full life cycle for plant and animal species with poor dispersal capability (e.g., non-flying insects, many species of plants, small mammals, etc.) and for habitat-specific species (e.g. area-sensitive woodland species). Such linkages may be 300-600m or more wide. At a local scale, the primary function of linkages may be to allow wildlife to complete important life cycle requirements (e.g., facilitate amphibian movement from ponds to woodlands), and may be narrower (less than 100m).

Enhancement Areas

Enhancement Areas are areas without obvious environmental features, such as old fields, pasture lands, and active agricultural lands, that are included in a NHN to achieve objectives related to Core Area or Linkage habitat enhancement. For example, individual Core Areas may be *enhanced* by including areas that reduce the amount of edge and increase the size of a core to include interior habitat; multiple Core Areas located in close proximity may be enhanced by identifying an enhancement area between the individual cores to form a cluster of features that create a single large Core Area. In many cases, Core Areas comprised of watercourses and valleylands will benefit from the identification of enhancement areas along the watercourse or valleyland to improve ecological functions such temperature regulation, addition of food sources, filtering of surface run-off, etc. as well as the linkage function often associated with these areas. Local and regional scale Linkage Areas in a NHN will include Enhancement Areas necessary to maintain the width and natural habitat required to provide continuous, functional ecological connections.



3.0 COMMUNITY ENGAGEMENT

Community engagement was undertaken with a wide range of stakeholders in a variety of forums to share information about the approach to refine and enhance the NHN and to seek support of and input to the NHN. Below is a brief description of the key community engagement initiatives that have been undertaken, while a complete description including key discussion points is available in Appendix 1.

3.1 Community Stakeholder Workshops

Four stakeholder sessions were held between October 2013 and March 2014 to discuss Vaughan's Natural Heritage Network Study. These sessions were advertised to a wide range of external stakeholders representing: government and agencies (including adjacent municipalities and local conservation authorities), educational institutions, environmental groups, community groups and residents associations, recreational facilities, business and development organizations, local utilities and transit, and arboriculture firms. Workshop sessions included welcoming remarks from Tony Iacobelli (Project Manager, City of Vaughan) and a presentation on the project given by Brent Tegler (North-South Environmental, Project Lead for the consulting team). Susan Hall from Lura Consulting facilitated the community discussions and solicited input from participants. The purpose of the workshops was to obtain input from stakeholders including: (1) existing or potential future initiatives that may contribute to the NHN; (2) opportunities and constraints that influence the NHN; (3) suggestions for evaluating criteria to establish the NHN scenarios.

3.2 City of Vaughan Staff Sessions

A session with City of Vaughan staff was held on October 29th, 2013 to provide an update on Vaughan's NHN Study and to discuss the relationship of the NHN to other studies and projects underway or planned for the City. Seventeen staff members participated from a wide range of departments including Development Planning, Parks Development, Building Standards, Policy Planning, Parks and Forestry, Environmental Sustainability, Transportation Engineering, Asset Management, ITM, Innovation/Continuous Improvement and Engineering Services. The session included welcoming remarks from Tony Iacobelli (Project Manager, City of Vaughan) and a presentation by Brent Tegler (North-South Environmental, Project Lead for the consulting team). Susan Hall from Lura Consulting facilitated the discussions and solicited input from participants. The purpose of the workshops was to obtain input including: (1) existing or potential future initiatives that may contribute to the NHN, such as ongoing or future Master Plan studies; (2) opportunities and constraints; and (3) decision-making criteria to inform the assessment of the NHN against ecosystem targets.

3.3 Community Forum

The City of Vaughan hosted a Community Forum on November 13th, 2013 to seek community input for both the Natural Heritage Network Study (Phase 2-4) and the Climate Action Plan as both projects fall under the *Green Directions Vaughan*, the City's



Community Sustainability and Environmental Master Plan. In total there were 57 participants. The forum was advertised in the local paper, on the City website, distributed to all stakeholders who had participated in earlier sessions, posted on the City's social media feeds and invitations were issued to an extensive list of residents through the Planning Department. The community forum featured an open house from 6:30 – 7:00 p.m. and marketplace where participants could find out about other programs and projects by the conservation authority, Enbridge, Powerstream, Earth Hour and others. The forum began with welcoming remarks from John MacKenzie (Commissioner of Planning, City of Vaughan), followed by an overview presentation about the two projects given by Susan Hall from Lura Consulting. The remainder of the evening was dedicated to a “world café” format which included the following three stations:

- Climate Action Plan station where there was a brief overview presentation provided by Chris Wolnik and Jeff Garkowski (City of Vaughan and Lura Consulting) about the CAP and participants were encouraged to provide their input to the CAP vision, goals and key actions.
- Land Securement Strategy station, where Kate Potter (Orland Conservation) provided participants with an educational presentation on the variety of options that exist for land securement beyond land purchase. Kate reviewed land securement tools such as land donation, split receipt, conservation severance, bequest, conservation easement agreement and life interest agreement.
- NHN station which included a brief overview presentation by Brent Tegler (North-South Environmental consultant lead for the NHN study) followed by a facilitated discussion.

3.4 Online Public Questionnaire

The online survey was designed to provide participants with an opportunity for input and suggestions on the proposed vision for the NHN, on what might be considered Vaughan's most significant natural heritage assets and what might be the major issues facing the protection, management and enhancement of these assets. The survey also included questions in regard to the proposed approach to developing the NHN and the criteria proposed to evaluate NHN scenarios.

3.5 Landowner Meetings

A series of meetings were held with individual landowners in two rounds, (November/December 2013 and January/February 2014) to provide an opportunity for landowners to discuss in detail work being undertaken in the Phase 2-4 study relevant to their properties. The first session was held to review the objectives of the study, to share data obtained during the 2013 field season and to review natural heritage information that might be available for specific landowner areas. The second round of meetings was held to review and seek input on the draft results of applying criteria to develop the NHN and the approach proposed for NHN scenario testing. Tony Iacobelli (Project Manager, City of Vaughan) and Brent Tegler (North-South Environmental, Project Lead for the consulting team) conducted the meetings.

3.6 York Region Advisory Liaison Group



On May 5th, 2014 City of Vaughan staff presented the findings to date of the Natural Heritage Network Study, including refined mapping details and results of the assessment of significant wildlife habitat to a meeting with the York Region Advisory Liaison Group (YRALG).

The particular discussion topics addressed with the audience representing farmers and owners of agricultural lands included the following:

- The YRALG noted that the Provincial Policy Statement (2014) notes the importance of agriculture in relation to natural heritage. The City responded that either the staff report or consulting team report can indicate that PPS policy 2.1.9 states that “Nothing in policy 2.1 [regarding natural heritage protection] is intended to limit the ability of *agricultural uses* to continue”. This is an important consideration for stewardship approaches to improve vegetation protection zones, for example, associated with identified features (such as wetlands, woodlands, and watercourses). Restoration of VPZs could constitute a significant loss of productive land.
- There was a discussion of headwater drainage features, intermittent and/or ephemeral streams and that inclusion of these features in the NHN could be perceived as an additional cost to doing business, such as to erect a building for uses ancillary to agricultural uses. In such a case, permitting for the building may require an Environmental Impact Study.
- The YRALG advised not to identify Enhancement Areas in the Greenbelt Plan and ORMCP areas, but to recognize that the Provincial Plan areas address continued agricultural uses.
- It was noted while there is good uptake of the Environmental Farm Plan program in Ontario (70-80% uptake), it is not known which lands have Environmental Farm Plans in place as the information is not public. It was suggested that this information would need to be gathered through landowner contact as part of a stewardship/securement approach by the City.
- It was noted that setbacks along rural roads provide for vegetation restoration that can be beneficial for linkages and connectivity for wildlife movement.
- Management approaches to maintain significant wildlife habitat for open country species was discussed. Several parts of the City may need to be identified so that one or two areas are maintained in suitable vegetation cover in any given year. Hay, for example, is often grown for several years as the species used for hay (grasses such as Timothy or legumes such as alfalfa) are perennials. Switching the crop to corn, for example, is not suitable for open country species. Yet, identifying several areas of the City for suitable vegetation cover, and generally maintaining agricultural production in the Greenbelt Plan and ORMCP areas of Vaughan, could be a strategy to maintain open country species.



4.0 FIELD STUDIES CONDUCTED IN SUPPORT OF THE NHN STUDY

4.1 Frog Call Surveys

4.1.1 Selection of Amphibian Survey Sites

Surveys to inventory calling frogs were conducted at select locations throughout the City of Vaughan. Selecting locations for point count surveys was in part based on reviewing locations previously surveyed by the TRCA. Those locations surveyed pre-2008 by the TRCA were selected to update this older data and determine if land use changes have resulted in a change in frog presence and abundance.

Additional sites were selected for surveying based on TRCA mapping. Wetlands less than two hectares in size within 100 m of a woodland were identified through GIS as priority sites for amphibian surveys. Additional amphibian breeding sites that had not been previously surveyed by the TRCA were also identified through field reconnaissance. Surveys were also completed on block plan areas where permission was granted and information was provided by the landowners' ecological consultant regarding amphibian habitat.

4.1.2 Amphibian Survey Methods

Three rounds of surveys were completed according to the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2008). A total of 68 points were surveyed with the number of visits in part dependent on landowner permission. Each visit was conducted in mild temperatures (above 5°C for the first survey, above 10°C for the second survey and above 17°C for the third survey, with little or no precipitation, between sunset and approximately one hour after midnight (surveys were only conducted after midnight as long as temperatures remained warm). Frog abundance was assessed using accepted guidelines as follows:

Code 1: Individuals can be counted; calls not simultaneous

Code 2: Calls distinguishable; some simultaneous calling

Code 3: Full chorus; calls continuous and overlapping

4.2 Headwater Drainage Feature Surveys

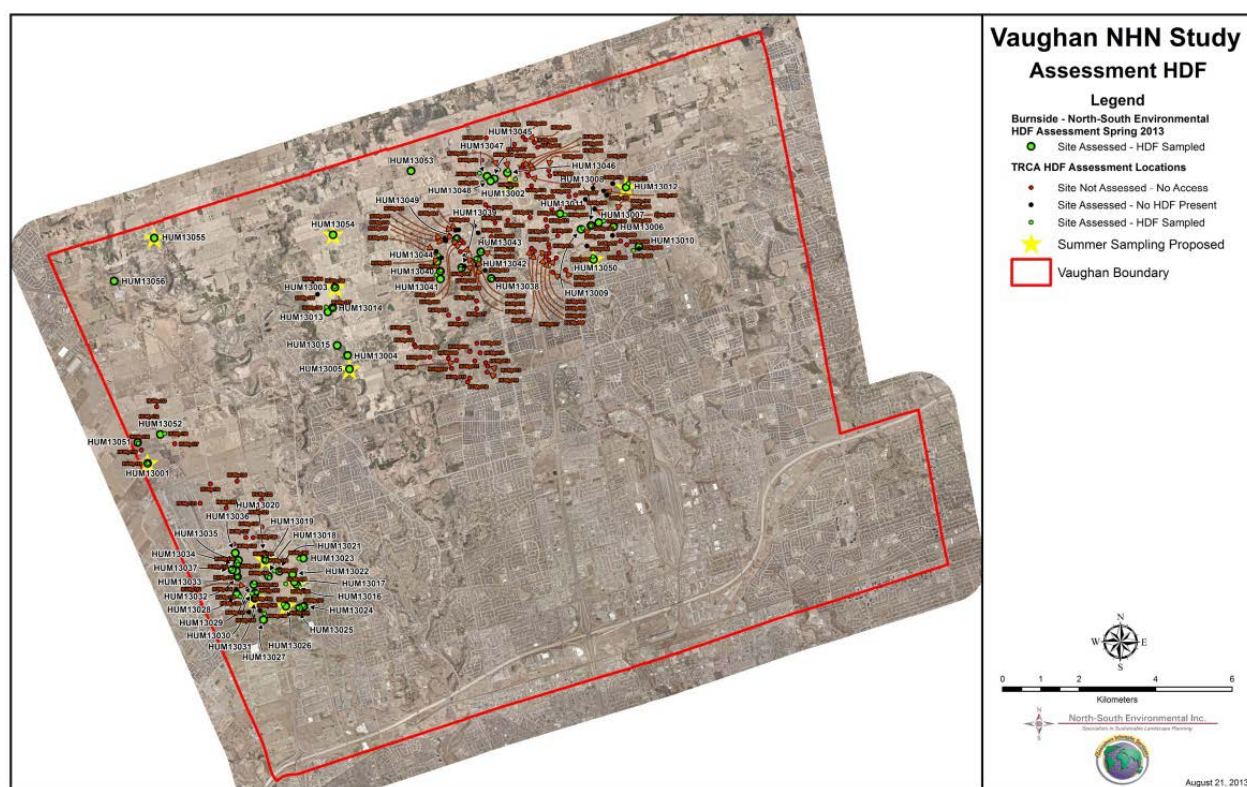
Headwater drainage features were surveyed throughout the City of Vaughan on private and public lands. Headwater drainage features are often not mapped as they are located in the upper reaches of watercourse catchments, therefore locations of potential headwater drainage features were selected through Arc Hydro modeling completed by the TRCA. Arc Hydro operates by using GIS to complete geospatial analysis to characterize watersheds. Only those points were surveyed where access was permitted and that met the following criteria:

- The drainage feature had a minimum catchment area of 2.5 ha;
- The feature was relatively permanent in the landscape (i.e. if ploughed, would reappear following subsequent runoff events); and
- The feature had sufficient seasonal flow to have the potential to move bedload.



Fifty-seven points along modelled HDFs were surveyed between April 17th and May 30th, 2013 (Figure 3). Thirty-two additional points were investigated but were deemed not to meet the definition of an HDF. Where more than one point was completed on an HDF, points were spaced at least 250 m apart. A second survey was completed in mid-July at 12 points where there was a potential they could be permanent features (Figure 3). Data was collected based on methods outlined in the Ontario Stream Assessment Protocol, Section 4, Module 9 (Instream Crossing and Barrier Attribution) (April 2013) and Module 10 (Assessing Headwater Drainage Features) (March 2013) produced by the Ministry of Natural Resources and Toronto and Region Conservation Authority.

Figure 3: Location of 2013 Headwater Drainage Feature field site assessments



4.2.1 Headwater Drainage Feature Assessment

The assessment of headwater drainage features (HDFs) was based on the Evaluation, Classification and Management of Headwater Drainage Features Guidelines prepared by the Credit Valley Conservation and the TRCA (January 2014). The evaluation involved the use of orthoimagery, GIS data (e.g. soils mapping, wetland mapping, fish data), data obtained during field investigations and through reviewing environmental reports completed by private landowners including block landowner groups. The assessment of each of the HDFs considered, feature form and flow, aquatic habitat, terrestrial habitat, in stream features, riparian features, vegetation and wildlife up and downstream of the HDF.



The science-based evaluation of each feature was used to classify each HDF into a management recommendation: *Protection, Conservation, Mitigation, Maintain Recharge, Maintain Terrestrial Linkage, and No Management Required*. Incorporation of a HDF into the NHN should be considered on a site specific basis with consideration of cumulative impacts at the larger landscape level. Those features which are classified as *Protection* were recommended to be incorporated into the NHN and be protected and/or enhanced in situ. Where a feature was classified as *Conservation*, it was recommended they also be included in the NHN; however, there may be considerations for relocation and/or enhancement of the HDF and its riparian zone corridor although the HDF must remain connected downstream.

Classification of each HDF into management recommendations was completed by following the flow chart illustrated on Figure 2 of the HDF Guidelines (2013). The following describes how each category was applied to each HDF in order to come up with a management recommendation.

Hydrology

Hydrology is classified into three categories: *Limited or Recharge, Valued or Contributing* and *Important*. The classification of an HDF as a hydrology category is described in Table 1.

Table 1. Hydrology classification taken from Table 4 of HDF Guidelines (Toronto and Region Conservation Authority and Credit Valley Conservation 2013).

Assessment Period	TRCA Hydrology Classification		
	Limited or Recharge	Valued or Contributing	Important
Spring freshet (late March – mid-April)	FC = 1 or 2 AND FT = 4 or 7	FC = 3, 4, or 5 AND FT = 1, 2, 3, 4, 5, 7 or 8; OR if wetland (FT = 6) occurs upstream	
Late April – May	FC = 1 or 2 AND FT = 4 or 7	i. FC = 1 or 2 AND FT = 1, 2, 3 or 4 OR if wetland (FT = 6) occurs upstream; OR ii. FC = 3, 4, or 5 AND FT = 4, 5 or 7 OR if wetland (FT = 6) occurs upstream	
July - August			FC = 2, 3, 4 or 5 AND FT = 1, 2, 3, or 8; OR FT = 6 AND FC = 2

Note: The following categories are hierarchical with highest level of function increasing from left to right. The highest level of function satisfied according to the conditions outlined above is to be used to classify hydrology for features. Assessments may be completed for important features earlier in the season, but flow conditions need to be confirmed in summer in order to satisfy the criteria for this class.



OSAP Flow condition codes (FC): 1= no surface water (dry), 2 = standing water, 3 = interstitial flow, 4 = surface flow minimal (<0.5l/s), 5 = surface flow substantial (>0.5l/s)

OSAP Feature type codes (FT): 1 = defined natural channel (visible banks), 2 = channelized (historically natural channel, now straight with banks), 3 = multi-thread (> 1 channel), 4 = no defined feature (overland flow only), 5 = tiled drainage (buried stream/pipe with outlet), 6 = wetland, 7 = swale, 8 = roadside ditch (channelized running parallel with roadway), 9 = online pond outlet

*Springs and seeps can be assessed based on data from the Upstream and Downstream Site Features from the field sheet

Fish Habitat

Fish habitat is classified into two categories: *Important* and *Valued*. The classification of these categories is as follows:

1. Important Fish Habitat
 - a. Fish present year round
2. Valued Fish Habitat
 - a. Seasonal habitat (e.g. migration, spawning, feeding, cover) and indirect habitat to sensitive species (RSD) (i.e. if natural channel that would provide ephemeral habitat to RSD for feeding, etc.)

Recharge Hydrology

Recharge hydrology was determined through base mapping of Ontario soils from OMAFRA by cross referencing the HDF point with sandy or sandy loam soils with good drainage.

Riparian Vegetation

Riparian vegetation is either considered as *Important* or not and is considered *Important* if it contains the following attributes: FT = 6 or Riparian Vegetation = 5, 6, or 7 where it covers >50% of the area within 40 m upstream and downstream of the point (see Table 2).

Table 2. Riparian Vegetation classification taken from HDF Guidelines (Toronto and Region Conservation Authority and Credit Valley Conservation 2014).

Riparian Vegetation Code	Description	Observation
1	None	Over 75% of the soil has no vegetation; includes hard surfaces such as roads and buildings
2	Lawn	Grasses that are not allowed to reach a mature state due to mowing
3	Cropped Land	Planted or tilled in preparation for agricultural crops; plants typically arranged in rows (due to machine-planting); may be subject to periodic tillage
4	Pasture/Forage Crops	Grasses and forbs that are not allowed to reach a mature state due to grazing by livestock.
5	Meadow	Less than 25% tree/shrub cover; characterized by grasses, forbs and sedges



Riparian Vegetation Code	Description	Observation
6	Scrubland	More than 25% and less than 60% trees and shrubs interspersed with grasses and forbs (a transitional area between meadow and forest, with trees generally less than 10 cm in diameter at breast height)
7	Forest	More than 60% of the canopy is covered by the crowns of trees
8	Wetland	Dominated by water tolerant wetland plants including rushes, and water tolerant trees or shrubs

Terrestrial Habitat

Terrestrial habitat is classified into three categories: *Important*, *Valued* and *Contributing*. The classification of these categories is as follows:

1. Important
 - a. FT = 6 with breeding amphibians*
2. Valued
 - a. FT = 6 acting as stepping stone for amphibians but no breeding amphibians (look for wetlands within 400 m)
3. Contributing
 - a. Riparian Vegetation = 5, 6, 7 within 0-10 m that functions as riparian habitat along corridor with sampling point connecting two habitat features to facilitate movement of wildlife through corridor

4.3 Breeding Bird Surveys

The focus of breeding bird surveys was on identifying SWH for breeding birds, particularly SWH related to successional areas and smaller forest patches. Though wetlands and large forest habitats can be considered SWH, they were considered a lower priority as generally they already met the criteria to be included in the NHN.

4.3.1 Selection of Breeding Bird Survey Sites

TRCA Ecological Land Classification (ELC) mapping, where available, was initially used to select habitat for surveying based on size. Additional habitat patches were selected in the field based on ground-truthing of aerial photography.

Selection of Areas to be Investigated as SWH for Open-country and Thicket-nesting Birds

Areas selected for bird surveys were initially focused on finding SWH for thicket-nesting and open-nesting bird species. Criteria shown in MNR Draft SWH Ecoregion 6E Criterion Schedule and Draft SWH Ecoregion 7E Criterion Schedule (MNR 2012) (Appendix 2) were used to guide the habitat on which to focus. While it is understood that these criteria are in draft form, they provide useful concrete guidance in initial screening for SWH. Ecoregion schedules include criteria related to size and those



related to indicator species. Initial selection focused on habitat patches that met ecoregion criteria for size. The habitats of highest priority were the following:

- Cultural meadows greater than 30 ha
- Cultural thickets greater than 10 ha

The initial screening also included obtaining information on presence of certain bird species from previous surveys, as Ecoregion schedules include criteria related to the presence of thicket- and grassland-dependent bird species. Bird surveys conducted by TRCA were available for the study area, so they were screened for the presence of indicator species noted in the past.

Priority bird species identified in the draft Ecoregion criteria for determination of open-country SWH are shown in Appendix 2. The presence of two or more of these listed species indicates SWH in both Ecoregion 6E and 7E. In addition to listed species, the presence of species listed as Special Concern under the Endangered Species Act, 2007 or species evaluated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Threatened or Endangered (even though not yet listed) can also be considered indicators of SWH. The species noted on the Ecoregion schedules that meet these criteria was Short-eared Owl. Common Nighthawk has been designated a species of Special Concern and therefore was considered in this study as an indicator species of open-country SWH.

Priority bird species identified in the draft Ecoregion criteria for determination of thicket SWH in Ecoregion 6E and are shown in Appendix 2. Patches of cultural thicket supporting one indicator species plus two common species meet the criterion for SWH. The 2012 draft Ecoregion criteria included two species of Special Concern that could also be used as indicators of SWH: Golden-winged Warbler and Yellow-breasted Chat. However, these two species have since been designated Endangered under the ESA. Therefore they cannot be used as indicators of SWH. There are no species of Special Concern found in thicket habitats in the Vaughan area.

In addition to criteria related to size and species, there are some habitat criteria that are also provided for evaluation of SWH. To qualify as open-country SWH, grasslands should not include Class 1 or 2 agricultural lands, and should include lands not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. To qualify as thicket SWH, habitat must consist of shrubland or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years).

However, since it was not always possible to evaluate the condition of the habitat from roadsides, a conservative approach was taken that mapped as SWH all habitat that qualified because of the size and presence of indicator species. In addition, the exemption for Class 1 and 2 agricultural lands was not taken into consideration as the



protection afforded within an NHN would only come into play if the land use changed from agricultural to urban, when the lands would no longer be useful for agriculture.

Surveys were focused on areas where bird surveys had not already been completed by TRCA, or where TRCA had completed surveys before 2005. However, a few surveys were completed in larger patches where access was available in order to provide a context for surveys in smaller habitat patches that could only be surveyed from the road

Selection of Areas to be Investigated as SWH for Woodland Area-sensitive Birds

Selected smaller forests were investigated to determine whether there were smaller clusters of forest habitat that together would support species that are considered area-sensitive. Surveys therefore included forest clusters that considered together would comprise at least 20 ha; where at least one patch was a minimum of 10 ha, and as long as individual patches were smaller than 20 ha. The rationale for this was that forests over 20 ha are considered significant woodlands and would thus be included in the NHN. In addition, larger forests have generally been surveyed by TRCA. An additional habitat criterion noted in Ecoregion schedules, that the interior forest habitat should be >200 m from the forest edge, was not considered in selection of habitat for surveying as the purpose of woodland surveys was to determine whether larger clusters of forest supported area-sensitive species.

TRCA's data were examined for the presence of woodland area-sensitive bird species. Woodland area-sensitive species considered indicators in the Ecoregion Schedules for both 7E and 6E are shown in Table 3 of Appendix 2. In addition to indicator species, the presence of species listed as Special Concern under the Endangered Species Act, 2007 or species evaluated by the Committee on the Status of Endangered Wildlife in Canada as Threatened or Endangered (even though not yet listed) can also be considered indicators of SWH. Canada Warbler was listed in Ecoregion schedules as the only species that meets this criterion. However, as of 2013, two additional species have been designated Special Concern: Wood Thrush and Eastern Wood-Pewee. Thus, SWH mapped in this study includes forest patches that supported Wood Thrush and Eastern Wood-pewee.

4.3.2 Breeding Bird Survey Methods

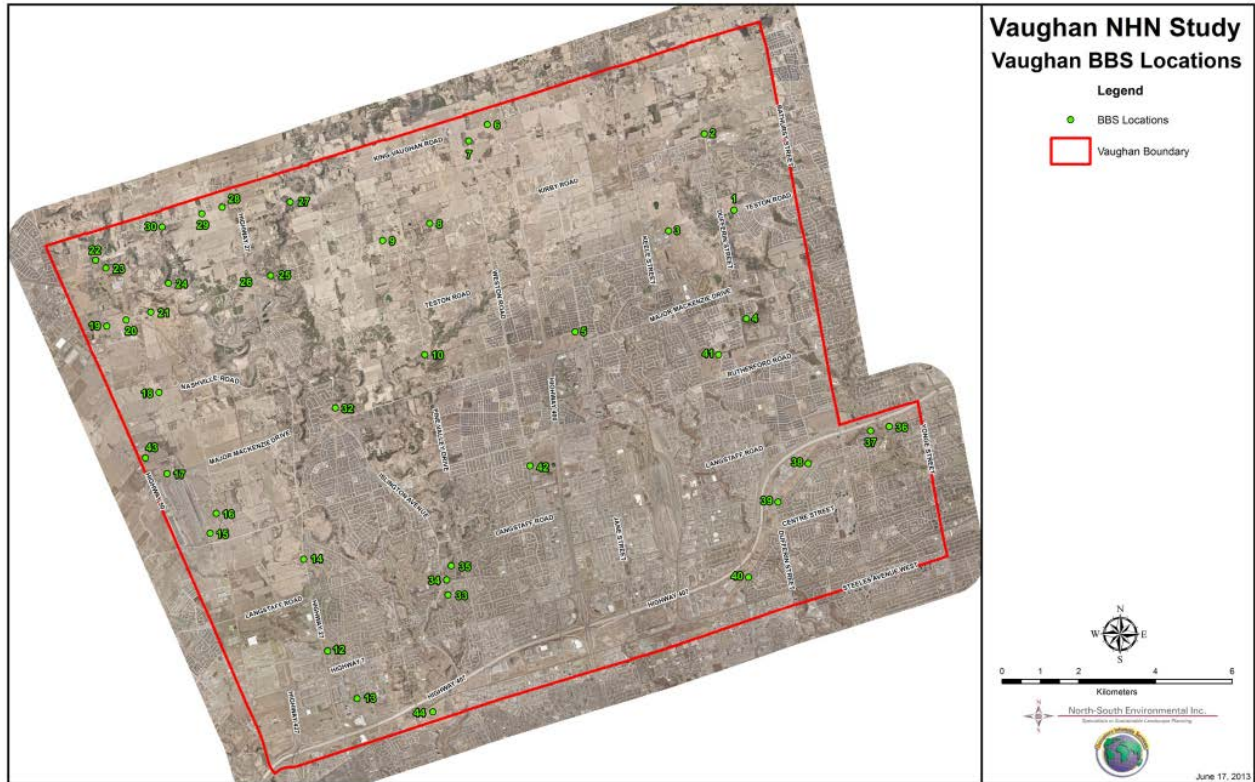
Landowner contact was initiated for properties that were a priority for surveys. However, there were very few sites where permission was granted to access the site. Site surveys were conducted within sites if permission could be obtained, but most were conducted from roadsides.

Fifty-one point count surveys were conducted according to Environment Canada protocols for point counts. Points from which surveys were conducted are shown in Figure 4. Two surveys were conducted at 45 of the points, in the early part of the season (June 4th to 8th) and the late part of the season (June 18th to 19th). Six additional points were surveyed only on one occasion, as a result of permissions being granted at later dates. All surveys were conducted between 5:00 a.m. and 9:30 a.m., in fair



weather with wind less than 4 on the Beaufort Scale. Each point count consisted of passive listening for 10 minutes. All birds heard or seen during each ten minute point count were noted.

Figure 4: Location of 2013 point count surveys for breeding birds in Vaughan



4.3.3 Delineation of Patches

Patches of Significant Wildlife Habitat were initially identified on the basis of the presence of indicator species for each of the habitats in question (open-country, thicket and woodland), using both TRCA and NSE 2013 data. If the patch met the criteria according to the species present, it was then delineated through interpretation of its boundaries on aerial photography, assisted by TRCA mapping (if available) or, for woodlands, woodland patch mapping. The presence of indicator species coupled with the minimum patch sizes shown in Ecoregion schedules (30 ha for open-country habitat, 10 ha for thicket habitat and 30 ha for woodland habitat) was used to designate the patches as SWH for open-country species, thicket species and woodland species. No size criterion was required to designate habitat as SWH on the basis of Special Concern species listed under the ESA or species evaluated as Threatened or Endangered by COSEWIC.

Two area-sensitive grassland species considered Threatened under the ESA were noted widely within meadows in the study area: Bobolink and Eastern Meadowlark. Despite their area-sensitivity, these species are not considered indicators of significant open-country habitat because their habitat is regulated by the Endangered Species Act, 2007. However, because most surveys were conducted from roadsides, there was the potential for some of the species that inhabit the same habitat as Bobolink and Eastern Meadowlark to be overlooked if they were at a distance from the roadside that they could not be heard. Therefore, habitats where Bobolink and Eastern Meadowlark occurred were considered areas of potential SWH and so these patches were mapped and have been provided in the digital database provided to the City for future reference.

Barn Swallow is also considered a Threatened species under the Endangered Species Act. This species depends on human-made structures for breeding. Eight records of Barn Swallow were noted, but the habitats were not mapped as the breeding locations were likely in neighbourhoods adjacent to natural areas. Habitat for Barn Swallow would not be considered SWH, as it is regulated under the ESA.

4.4 Bluff Surveys

Bluff communities have the potential to contain rare plants (e.g. prairie species) and animals (e.g. Bank Swallow) and as such were surveyed along a reach of the Humber River by canoe between the northern limit of Vaughan and Nashville Road. The survey was completed on September 19th, 2013. Bluff communities were identified according to the Ecological Land Classification (Lee et. al. 1998) description.

Bank Swallow have recently been designated as Endangered under the ESA. Bluff habitat for these species is thus regulated by the ESA.



5.0 ANALYSIS OF FIELD DATA

5.1 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (SWHTG) (2000; Appendix Q) provides guidance for evaluating Significant Wildlife Habitat (SWH), however, the SWHTG does not include detailed criteria to aid in the identification of SWH. More detailed draft criteria for evaluating SWH have been developed by the Ministry of Natural Resources (MNR) for some areas of the province; (see Appendix 2 for *Draft Significant Wildlife Habitat Ecoregion 6E Criterion Schedule and the Draft Significant Wildlife Habitat Ecoregion 7E Criterion Schedule*, MNR 2012). These draft criteria were used with the available spatial data (e.g. woodland, wetland, meadowland, successional woodland, orthoimagery, etc.) and species location data (North-South Environmental field data 2013 and TRCA data) for Vaughan to identify SWH; the criteria for eco-region 6E were applied to those areas within the Oak Ridges Moraine, and the criteria for eco-region 7E were applied to the remainder of Vaughan.

The SWH analysis has identified and delineated “Confirmed SWH” and this information has been added to the digital database used in defining the NHN in Vaughan.

5.1.1 Analysis of Amphibian SWH (Woodland and Wetland)

The Significant Wildlife Habitat Technical Guide (SWHTG) (2000; Appendix Q) provides guidance for evaluating woodland amphibian breeding habitat. However, it lacks concrete criteria for identifying significant wildlife habitat. Draft criteria for evaluating significant wildlife habitat for both amphibian woodland and wetland habitat are provided in the Draft Significant Wildlife Habitat Ecoregion 6E Criterion Schedule and the Draft Significant Wildlife Habitat Ecoregion 7E Criterion Schedule (MNR 2012). These draft criteria were used to identify significant wildlife habitat where the criteria for eco-region 6E were applied to those areas within the Oak Ridges Moraine, and the criteria for eco-region 7E were applied to the remainder of Vaughan.

Both data obtained from surveys completed by North-South in 2013 and data obtained from the TRCA were used in evaluating features as significant wildlife habitat for amphibians. TRCA data from 2005 and 2008 were deemed acceptable if the current habitat (e.g. woodlands, wetlands and breeding ponds and their surroundings) appeared unaltered based on a review of orthoimagery of the features present at the time of the surveys. The abundance of frogs calling can change daily as well as annually based on climatic differences (e.g. temperature, precipitation); as such, the highest abundance code was used in the analysis, including data obtained in 2008, if the habitat had not been altered since the time of earlier surveys.

Woodland amphibian breeding habitat was identified in Ecoregion 7E where two or more of the listed frog species were present (Table 3) with at least 20 individuals recorded. In Ecoregion 6E (the Oak Ridges Moraine) woodland amphibian breeding habitat was identified where one or more of the listed frog species was noted. The habitat included the woodland and wetland ELC polygons combined where the



wetland/pond was within 120 metres of the woodland. A presumed travel corridor connecting the woodland and wetland/pond breeding habitat was also included as part of the significant wildlife habitat.

Where the wetland was over 120 metres from a woodland, was at least 500 m², and sufficient numbers and diversity of amphibians were present, the habitat was evaluated as wetland amphibian breeding habitat. Wetland amphibian breeding habitat was identified in Eco-region 7E where two or more of the listed frog species (Table 3) with at least 20 individuals was recorded. In Eco-region 6E, wetland amphibian breeding habitat was identified where three or more of the above listed frog species was recorded with at least 20 individuals. The ELC ecosite wetland area and the shoreline are considered the significant wildlife habitat where the wetland/pond was at least 500 m².

Table 3. Criteria used to evaluate amphibian woodland and wetland significant wildlife habitat.

Significant Wildlife Habitat	Frog Species	Criteria for Eco-region 7E	Criteria for Eco-region 6E
<i>Amphibian Woodland</i>	<ul style="list-style-type: none"> • Gray Treefrog • Spring Peeper • Western Chorus Frog • Wood Frog 	Two or more of the listed species with at least 20 individuals	One or more of the listed species with at least 20 individuals
<i>Amphibian Wetland</i>	<ul style="list-style-type: none"> • Gray Treefrog • Western Chorus Frog • Northern Leopard Frog • Pickerel Frog • Green Frog • Mink Frog • Bullfrog 	Two or more of the listed frog species with at least 20 individuals	Three or more of the listed frog species with a least 20 individuals

5.1.2 Significant Wildlife Habitat Based on Breeding Bird Species

Table 4 provides a summary of types of SWH within the Vaughan study area, derived as a result of field surveys in 2013 as well as TRCA surveys. The number of habitat polygons and the areas of polygons are also summarized in Table 4. The following sections provide a description of the derivation of each type of SWH.



Table 4. Significant Breeding Bird Habitats noted within the Vaughan Study Area

Type of Habitat	Total Area (ha)	Number of Patches	Average Area of Patches (ha)	Size Range of Patches (ha)
SWH Area Sensitive Open Country Breeding Birds	46.27	1	46.3	46.27
SWH Special Concern Open Country Breeding Birds (Common Nighthawk)	19.16	1	19.2	19.16
SWH Threatened Woodland Bird Species (Wood Thrush)	1144.22	31	36.9	3.9 to 110.8
SWH Area-sensitive Woodland Bird Species	638.63	9	71.0	23.1 to 130.5
SWH for Area-sensitive Woodland Bird Species and Threatened Woodland Species	515.94	7	73.7	41.8 to 130.5
SWH Shrub/Early Successional Breeding Birds	998.94	8	124.9	34.4 to 385.6
SWH for Shrub/Early Successional Breeding Birds and Threatened Grassland Bird Species	142.34	1	142.3	34.4 to 203.9
Habitat for Threatened Grassland Bird Species (Bobolink and Eastern Meadowlark) – Potential SWH	1143.99	56	20.4	0.24 to 114.4

5.1.3 SWH for Area Sensitive Open Country Breeding Birds

Only one patch of open–country breeding bird SWH was noted in the study area. This area was designated on the basis of the presence of both Grasshopper Sparrow and Vesper Sparrow, noted by TRCA in 2012, within a habitat patch of approximately 46 ha.

One other open-country indicator species, Savannah Sparrow, was noted widely within the study area. However, as noted in the Methods section, two indicator species are required to indicate SWH. Savannah Sparrow is considered area-sensitive by MNR, but it is on the lower end of the spectrum of area-sensitivity, and is very flexible in terms of habitat: it can nest in croplands such as wheat and corn fields (personal experience). Other indicator species, which include Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow and Northern Harrier, were rarely noted within the study area (Upland Sandpiper was not noted within the study area by TRCA or by NSE). Northern Harrier were noted occasionally, but they range widely while foraging so even though there was one occasion that a northern Harrier was noted in a habitat where Savannah Sparrows were noted, there was no evidence that the Northern Harrier was breeding so this patch was not delineated as SWH.

This habitat also supported two area-sensitive grassland species for which habitat is regulated by the Endangered Species Act, 2007 and thus cannot be considered



indicator species of SWH: Bobolink and Eastern Meadowlark. However, the presence of these species is a further indication that the habitat is important for area-sensitive grassland bird species.

5.1.4 SWH for Special Concern Open-Country Breeding Birds

Common Nighthawk, a species of Special Concern under the ESA, was noted conducting breeding displays within the power line corridor at the southeast corner of the study area, just south of Highway 407. This species breeds on gravelly surfaces on the ground and on rooftops, and conducts displays in open areas. It forages on aerial insects in a variety of habitats. The power line corridor provides suitable foraging habitat and breeding habitat is likely present within or in close proximity to the power line corridor.

5.1.5 Habitat for Threatened Area-sensitive Grassland Species

As noted in section 4.3.3, Eastern Meadowlark and Bobolink cannot be considered indicator species of SWH, as they are regulated by the ESA. However, their presence is an indication that the habitat is suitable for area-sensitive grassland species, which includes all species considered indicators of SWH for open-country species by MNR. Savannah Sparrows were also frequently found in these habitats. There is the potential for additional indicator species in these habitats, especially since the 2013 surveys were conducted from roadsides and not all parts of the habitat could be surveyed.

5.1.6 SWH for Shrub/Early Successional Breeding Birds

Eight patches of SWH for thicket-nesting species were noted, mainly on the basis of finding the indicator species Brown Thrasher plus two of the common species: primarily Willow Flycatcher, Eastern Towhee and Field Sparrow, with occasional Black-billed Cuckoo. Only one Clay-coloured Sparrow (also considered an indicator species) was found within the study area, and this area did not support additional qualifying species.

The patch sizes for these habitats were on average larger than other types of SWH noted within the study area. One reason for this may have been that the polygons were sometimes difficult to delineate, as thicket habitat tended to occur as patches interspersed with small patches of woodland, wetland and open field. In one case, Eastern Meadowlark and Bobolink were noted in open areas among patches of thicket in a large natural area that supported many thicket indicator species.

5.1.7 SWH for Area-Sensitive Woodland Breeding Birds

Area-sensitive woodland breeding birds were noted rarely within the 2013 surveys, indicating that the clusters of smaller forest patches studied in 2013 did not readily support area-sensitive woodland species. The lack of area-sensitive species may have also been partly because most surveys in 2013 were conducted from roadsides. The only woodland area-sensitive birds noted in 2013 surveys were Red-breasted Nuthatch (two records) and Scarlet Tanager (one record), and these birds were not found with other area-sensitive species.



Most of the delineation of woodland area-sensitive bird SWH incorporated larger forests studied by TRCA. TRCA's surveys incorporated some of the largest forests in Vaughan. The most common area-sensitive bird species found by TRCA were Ovenbird (51 records), Scarlet Tanager (45 records), Red-breasted Nuthatch (25 records), Black-throated Green Warbler (12 records), Veery (7 records), Winter Wren (4 records) and Yellow-bellied Sapsucker (1 record).

5.1.8 SWH for Special Concern and Rare Woodland Species

Thirty-one patches of woodland supported Wood Thrush (Table 4), a species recently designated Threatened in Canada by COSEWIC and considered Special Concern under the ESA. This species is not considered area-sensitive by MNR, though it is often found in larger and more mature forest patches (personal experience). Most, though not all, habitats occupied by area-sensitive woodland species were also occupied by Wood Thrush. Conversely, however, most habitats occupied by Wood Thrush were not occupied by area-sensitive birds.

Numerous patches of woodland habitat supported Eastern Wood-pewee, which was very recently designated as a species of Special Concern under the ESA. Eastern Wood-pewee is very common in the study area so habitat that supported this species in addition to Wood Thrush or area-sensitive species was not identified separately. Eastern Wood-pewee and Wood Thrush are identified as priority landbird species for conservation planning in the *Ontario Landbird Conservation Plan* (Ontario Partners in Flight 2008).

5.2 Headwater Drainage Feature Analysis

North-South Environmental completed comprehensive analysis of HDF including field data collection in spring and summer 2013 and data analysis following the revised TRCA/CVC HDF Guidelines (2013). The analysis results have been provided to Vaughan as part of the digital GIS database for future reference. Analysis results provide one of the following management recommendations:

- Protection
- Conservation
- Mitigation
- Maintain Recharge
- Maintain Terrestrial Linkage
- No Management Required

For those HDF which, through comprehensive field data collection and analysis, receive a management recommendation of "protection", "conservation" or "maintain terrestrial linkage" it is recommended that these HDF be included in the NHN for Vaughan. For those HDF which receive other management recommendations, but particularly "mitigation" and "maintain recharge", it is recommended that any proposed development should maximize the implementation of Low Impact Development (LID) measures as recommended by Conservation Authorities (CVC/TRCA 2010) to reduce the impact of development on surface water flow, ground water infiltration and evapotranspiration.



Based on the HDF field studies and analysis completed as a part of this project the following recommendations are made to strengthen future HDF studies:

- A single field visit is insufficient to make a final management recommendation, particularly in regard to Hydrology Classification, early and late spring field sampling as well as summer field sampling are needed to fully characterize the conditions of HDF.
- A desktop exercise using orthoimagery (and other available digital/hard copy data) is recommended prior to field analysis in addition to post field analysis to consider additional information such as presence of riparian habitat, digital soils information, vicinity to wetlands, vicinity to known amphibian habitat, and movement corridor function between wetlands/woodlands, ponds and forests.
- Agricultural tilling/plowing removes evidence of a channel (if present) making the determination of “Feature Type” difficult (or erroneous). We recommend sampling be completed prior to spring tillage/plowing. If this is not possible we recommend an effort may be made to look upstream/downstream beyond the area of tillage and/or similar adjacent HDF to make an accurate determination of Feature Type.
- Agricultural land use may remove and prevent the development of wetland vegetation. We recommend evidence of upstream wetland vegetation or strong evidence of downstream wetland vegetation should be taken into consideration in determining the “potential” presence of a wetland feature.
- We recommend data sheets include the following sections to record additional data important to determining a management recommendation (including data that may be compiled from additional sources such as orthoimagery)
 - fish presence with comment line to note species [information used to determine hydrology]
 - benthic insects present with comment line to note species [information used to determine hydrology]
 - amphibian presence with comment line to note species present and recommendation requiring amphibian survey [information may be used in determining terrestrial habitat classification]
 - presence of habitat (wetland, woodland, thicket) upstream, downstream, and adjacent and the estimated distance [information may be used in determining terrestrial habitat classification in regard to stepping stone function for amphibians and movement corridor function for other wildlife]
 - check box to recommend summer sampling for presence of flow and/or standing water in a wetland (include footnote outlining requirement for summer sampling based on Flow Condition of 5 recorded during spring base flow sampling and/or presence of a wetland with obligate wetland species) [information used to determine hydrology]



6.0 DIGITAL DATA AVAILABLE IN THE GIS DATABASE

Digital data from a wide variety of sources was assembled to provide the foundation for development of the NHN. Sources of data included:

- data from the Province’s digital data warehouse - Land Inventory Ontario (LIO);
- data made available by York Region;
- data made available by the Toronto Region Conservation Authority;
- digital data from the City of Vaughan; and
- data collected field studies conducted for the NHN study.

A variety of types of data are in the GIS database including:

- information on the natural environment such as information on woodlands, wetland and watercourses, crest of slope, etc.;
- information regarding designated areas such as provincially designated Areas of Natural and Scientific Interest (ANSI) or Provincially Significant Wetlands (PSW); and
- information regarding existing land use designations such as the provincial Greenbelt Natural Heritage System and Oak Ridges Moraine Core and Linkage Area, York Region’s Greenlands, and City of Vaughan Open Space and property boundaries.

In some cases the available digital data was updated to reflect current conditions in Vaughan. For example, areas of woodland in the digital database that are no longer present due to removal for urban development were removed to update the digital database. The complete list of available digital data is shown in Table 5.

Table 5. Digital Data available in the City of Vaughan digital data set.

DIGITAL DATA	SOURCE(S)	DESCRIPTION
Forest/Woodlands	York Region, LIO, TRCA	Woodland identified through interpretation of aerial imagery and field investigations Significant woodlands identified based on York Region criteria
Wetlands	LIO, TRCA	Wetlands identified through interpretation of aerial imagery and field investigations. Provincially Significant Wetlands identified based on Provincial criteria
Meadowlands	TRCA	Meadowlands identified through interpretation of aerial imagery and field investigations.
Flora & Fauna	TRCA, NSE	Point locations of species observations based on field studies undertaken by TRCA and North-South Environmental (NSE)



DIGITAL DATA	SOURCE(S)	DESCRIPTION
Significant Wildlife Habitat	NSE, TRCA	As determined through analyses described in this report based on Draft Significant Wildlife Habitat Ecoregion 6E Criterion Schedule and the Draft Significant Wildlife Habitat Ecoregion 7E Criterion Schedule (MNR 2012)
Watercourses	LIO, TRCA	Watercourses identified through interpretation of aerial imagery and field investigations.
Waterbodies	LIO, TRCA	Waterbodies identified through interpretation of aerial imagery and field investigations.
Crest of Slope	TRCA	The crest of slope was identified digitally using a Digital Elevation Model (DEM)
Oak Ridges Moraine	York Region	Includes Oak Ridges Moraine Core and Linkage Areas
Greenbelt Plan	York Region	Includes Greenbelt Natural Heritage System
York Greenlands	York Region	Includes areas designated York Greenlands in Vaughan
Areas of Natural and Scientific Interest	LIO	Includes Earth Science and Life Science Areas of Natural and Scientific interest within the City of Vaughan
Environmentally Significant Areas	TRCA	Includes areas designated Environmentally Significant by the TRCA
City of Vaughan Zoning	Vaughan	Includes existing property boundaries and zoning maintained by the City of Vaughan



7.0 CRITERIA USED TO IDENTIFY A NHN FOR VAUGHAN

The criteria used to determine areas included in Vaughan's NHN are based on ecological principles intended to achieve the goal established for the NHN while also conforming to policies of the Province, York Region and the City of Vaughan.

To identify a Natural Heritage Network (NHN) consisting of core areas & enhancement areas that form a robust, linked ecological system of resilient natural habitats providing long term protection of native biodiversity. (NHN Goal statement)

The criteria used in identifying what natural features and areas in Vaughan are included within the NHN are described below. Criteria are applied to the available digital data set (see Section 6) following one of three methods briefly described as:

1. criteria are applied directly to digital data to identify NHN areas without any further modification (e.g. Areas of Natural and Scientific Interest);
2. criteria are applied to digital data and a vegetation protection zone or buffer of a specified width is added to natural heritage features, to identify NHN areas; or
3. digital data are analyzed based on the criteria described below to identify an area for inclusion in the NHN.

Protection of species at risk as required by the Federal Species at Risk Act (2002) and Provincial Endangered Species Act (2007), including the protection of habitat for Endangered and Threatened species and Fish Habitat, is addressed through the policies in the VOP 2010 in accordance with appropriate federal and/or provincial legislation. As a result, NHN criteria are not established specifically to map habitat of Endangered and Threatened species and Fish Habitat, although such habitat is often included in the natural features identified below.

7.1 Woodlands

Criteria: All woodland patches greater than 0.5 ha in size are included in the NHN. Within the Greenbelt NHS and Oak Ridges Moraine Core and Linkage areas a 30 metre vegetation protection zone is added, in all other areas a 10 metre vegetation protection zone is added.

Justification: Approximately 88% of the original woodland cover has been removed in the City of Vaughan. This substantial reduction in native woodlands is more critical because the remaining woodland patches are much smaller, they often lack interior conditions, and they are often highly disturbed due to unsustainable logging, agricultural grazing and recreational use practices. As a result, woodland conservation is a high priority and there is need for programs to increase woodland cover.

Policy Implications: There are no policy implications as the criteria above to define woodlands as part of the NHN are consistent with policy 3.2.3.4(c), in which it is noted that Core Features of the NHN include "woodlands including those identified as *significant*, with a minimum vegetation protection zone as measured from the *woodlands*



dripline of 10 metres, or 30 metres for those *woodlands* within the Oak Ridges Moraine and Greenbelt Plan Areas”. Policy 3.3.3.3 provides tests to determine if development and/or site alteration can occur in a woodland in the Urban Area, in which case woodland enhancement is required in accordance with policy 3.3.3.4.

VOP 2010 policies are consistent with the woodlands policies in the York Region Official Plan, namely policies 2.2.44, 2.2.45, and 2.2.47-49.

7.2 Wetlands

Criteria: All wetlands within Vaughan are included within the NHN. A 30 metre vegetation protection zone is added to all wetlands.

Justification: Over 85% of the original wetlands have been removed in the City of Vaughan. Wetlands are among the most important biological communities providing critical breeding habitat, and seasonal and overwintering habitat to hundreds of species. As well wetlands perform important hydrologic functions of water storage, attenuation and infiltration. Protecting and restoring wetland habitat and functions is a critical part of protecting Vaughan’s natural heritage. VOP 2010 policy 3.3.2.2 recognizes that non-evaluated wetlands shall be assessed for significance.

Policy Implications: It is noted in VOP 2010 policy 3.2.3.4(b) that Core Features of the NHN include “*wetlands*, including those identified as provincially *significant*, with a minimum 30 metre vegetation protection zone”. Hence, the criteria above is consistent with VOP 2010 policy 3.2.3.4(b). Furthermore, VOP 2010 policy 3.3.2.2 provides for flexibility regarding wetland protection in stating that “prior to *development* or *site alteration* approval, non-evaluated *wetlands* that may be impacted shall be assessed for their significance, in accordance with criteria provided by the Province, and to determine their importance, functions and means of protection to the satisfaction of the City.” In addition, VOP 2010 policy 3.2.3.11 identifies the principle for habitat compensation to consolidate the NHN and provide flexibility for development design in stating that “minor modifications to the boundaries and alignment of **Core Features**, as identified on Schedule 2, may be considered if environmental studies, submitted as part of the *development* process to the satisfaction of the City and in consultation with the Toronto and Region Conservation Authority, provide appropriate rationale for such minor modifications and include measures to maintain overall habitat area and enhance ecosystem function.”

VOP 2010 policies are consistent with the wetlands policies in the York Region Official Plan, namely policies 2.2.35, 2.2.36, 2.2.37, 2.2.39 and 2.2.42.

Section 8.7 of the TRCA’s “*The Living City Policies*” addresses development and interference in relation to wetlands. The VOP 2010 policies are generally consistent with this section of “*The Living City Policies*”, although the latter provide more tests for the justification of development in or adjacent to wetlands.



7.3 Crest of Slope

Criteria: All areas within the crest of slope are included within the NHN. Within the Greenbelt NHS a 30 metre vegetation protection zone is added, in all other areas a 10 metre vegetation protection zone is added.

Justification: Valleylands are complex, dynamic riverine landscapes that change over time due to the action of running water. The large valley systems of the Don River and Humber River formed in part in association with high water flow that occurred over 10,000 years ago as glaciers retreated. In southern Ontario valleylands represent some of the most significant continuous natural areas remaining protecting terrestrial communities such as forests, thickets, meadowlands, and cliff communities and aquatic communities such as wetlands, seasonally flooded areas, cut-off river channels such as oxbows, and a variety of active main and secondary braided river channels.

The City recognizes that the information regarding crest of slope estimates the valley top of bank and/or stable slope. The evaluated top of bank and/or stable long term slope may differ from the crest of slope when more detailed assessment is undertaken as part of a development application.

Past development has occurred below the top of bank in certain parts of Vaughan. These areas are recognized and mapped as Built-up Valley Lands in the NHN.

Policy Implications: It is noted in VOP 2010 policy 3.2.3.4(a) that Core Features of the NHN include “*valley and stream corridors*, including provincially *significant* valleylands and permanent and intermittent streams, with a minimum 10 metre vegetation protection zone, or a 30 metre vegetation protection zone for those *valley and stream corridors* within the Oak Ridges Moraine and Greenbelt Plan Areas”. It is recognized by the City that the crest of slope information is: (i) not available for all valley features (i.e. valley corridors that “can visually be identified from its surrounding landscape” according to the definition in VOP 2010); and (ii) an estimate of the valley limits. VOP 2010 policy 3.3.1.3 directs that the precise limits of valley and stream corridors are determined to the satisfaction of the City and the TRCA. Hence, additional policy text is not required to ensure that valleylands are properly delineated and to accommodate changes to the NHN as depicted on Schedule 2 of the VOP 2010.

Sections 7.3.1.4 and 7.4.3.3 of the TRCA’s “*The Living City Policies*” provide further details regarding the delineation of valley and stream corridors and planning measures relating to the valley and stream erosion hazard. The VOP 2010 policies are consistent with “*The Living City Policies*”.

7.4 Watercourses

Criteria: All open, natural watercourses are included within the NHN. Watercourses considered Headwater Drainage Features (HDF) with a management recommendation of “Protection”, “Conservation” or “Linkage” based on TRCA/CVC



HDF Guidelines (2013) are also recommended for inclusion in the NHN (see discussion of HDF in Section 5.2). A 30 metre vegetation protection zone is added to either side of the high water mark of all watercourses.

Justification: Watercourses and the associated riparian corridor provide important habitat for a wide range of terrestrial and aquatic plants and animals. The linear, connected nature of a watercourse means these areas also provide important ecological movement corridors and the water conveyed by a watercourse is important to associated wetlands and waterbodies that intersect the watercourse along its length.

HDF constitute the majority of the total catchment area (70% to 80%) within a watershed (Gomi, et al., 2002) and it has been suggested that 90% of a river's flow may be derived from catchment headwaters (Kirby 1978).

Policy Implications: It is noted in VOP 2010 policy 3.2.3.4(a) that Core Features of the NHN include “*valley and stream corridors*, including provincially *significant* valleylands and permanent and intermittent streams, with a minimum 10 metre vegetation protection zone, or a 30 metre vegetation protection zone for those *valley and stream corridors* within the Oak Ridges Moraine and Greenbelt Plan Areas”. The available watercourse data may include watercourses that are ephemeral and/or headwater drainage features (ill-defined, non-permanently flowing drainage features that may not have defined bed or banks). In addition, headwater drainage features occur on the landscape that have not been mapped and delineated on Schedule 2.

As a result, it is recommended to amend the VOP 2010 as provided below.

- Add the following text regarding watercourses as policy 3.3.1.5 in Section 3.3.1 of the VOP 2010:

That *watercourses* may need to be confirmed by the City and the Toronto and Region Conservation Authority through field investigation. *Headwater drainage features* (HDFs) shall be identified and managed in accordance with TRCA's “Evaluation, Classification and Management of Headwater Drainage Features Guideline”, as may be updated.

- Renumber policy 3.3.1.5 to 3.3.1.6 and renumber policy 3.3.1.6 to 3.3.1.7

Add the following definitions to Section 10.2.2 (Definitions) of the VOP 2010:

Headwater Drainage Feature (HDFs): Ill-defined, non-permanently flowing drainage features that may not have defined bed or banks; they are zero-order intermittent and ephemeral channels, swales and rivulets, but do not include rills or furrows (also see *watercourse*). HDFs that have been assessed through TRCA's Evaluation, Classification and Management of Headwater Drainage



Features Guideline, as requiring protection, conservation or mitigation, are subject to TRCA's Regulation.

Watercourse: An identifiable depression in the ground in which a flow of water regularly or continuously occurs (*Conservation Authorities Act*) - also see *headwater drainage feature*.

Together with existing VOP 2010 policy 3.3.1.5 (to be renumbered to policy 3.3.1.6) regarding modification to watercourses and VOP 2010 policy 3.2.3.11 regarding modifications to Core Features, the policy framework covers instances to include watercourses in the NHN that may not have been mapped as well as modification to watercourses that are included in the NHN.

7.5 Waterbodies

Criteria: All natural waterbodies are included within the NHN. A 30 metre vegetation protection zone is added to either side of the high water mark of all waterbodies.

Justification: Natural waterbodies often occur in association with wetlands or as open water features providing unique habitat for aquatic plants and animals. Areas of deeper water are particularly important to provide overwintering habitat for some species and the larger aquatic habitats needed for fish, waterfowl and aquatic mammals. In some cases it may be difficult to discern "natural" from "anthropogenic" waterbodies given the history of settlement and landscape alteration. Hence, in the event a waterbody is part of a development application, it is anticipated that a more detailed assessment will be undertaken to determine the origin of the waterbody and the ecological features and functions associated with the waterbody as part of determining an appropriate protection and/or restoration strategy.

Policy Implications: VOP 2010 policy 3.2.3.4 does not specifically include waterbodies as Core Features, although kettle lakes are specifically noted in VOP 2010 policy 3.2.3.4(g).

It is noted in section 3.4 of the Natural Heritage Reference Manual (OMNR 2010), regarding identification of a natural heritage system, that:

- Waterbodies, including wetlands, often represent a relatively small percentage of the total land area, yet they can be disproportionately more valuable than other areas.
- It is recommended that measures be taken to protect water features, wetlands and other areas of hydrological importance (e.g., headwaters, recharge areas, discharge areas) within natural heritage systems.

The term, waterbodies, is not defined in the Natural Heritage Reference Manual (OMNR 2010), but Table B-1 in Appendix B includes a description of waterbodies in relation to the identification of fish habitat as follows:



Where no detailed fish habitat mapping has been completed, all waterbodies, including permanent or intermittent streams, headwaters, seasonally flooded areas, municipal or agricultural surface drains, lakes and ponds (except human-made off-stream ponds) should be considered fish habitat unless it can be demonstrated to the satisfaction of the approval authority under the Planning Act that the feature does not constitute fish habitat as defined by the Fisheries Act.

Surface water feature is defined in the Provincial Policy Statement (2014)

Surface water feature: *means water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics.*

The York Region Official Plan (ROP 2010) defines sensitive surface water features and waterbody as provided below.

Sensitive Surface Water Features: *Water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.*

Waterbody: *Lakes, woodland ponds, etc. which provide ecological functions. For the purposes of determining significant woodlands, waterbody generally does not include small surface water features such as farm ponds or stormwater management ponds, which would have limited ecological function.*

Given the information in the Provincial guideline documents, the ROP 2010 and TRCA's Living City Policy document, it is recommended to amend the VOP 2010 as described below.

- Amend VOP 2010 policy 3.2.3.4(h) to include the term 'sensitive surface water features' as follows, which is consistent with ROP 2010 policy 2.2.1(m):

Sensitive surface water features (including waterbodies), seepage areas and springs not already captured in *valley and stream corridors* and a 30 metre minimum vegetation protection zone for those seepage areas and springs in the Oak Ridges Moraine Conservation and Greenbelt Plan Areas.

- Amend policy 3.3.5.1 by adding a subparagraph as follows:

Prohibiting development and site alteration within sensitive surface water features and their vegetation protection zone unless it is demonstrated through



an environmental impact study that the development or site alteration will not result in a negative impact to the ecological and/or hydrological functions of the sensitive surface water feature.

- Add the following definitions from the ROP 2010 to Section 10.2.2 (Definitions) of the VOP 2010:

Sensitive Surface Water Features: Water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.

Waterbody. Lakes, woodland ponds: which provide aquatic habitat and ecological functions.

7.6 Areas of Natural and Scientific Interest

Criteria: All Areas of Natural and Scientific Interest (ANSI) are included in the NHN. This includes Earth Science ANSI's and Life Science ANSI's.

Justification: ANSI's are areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education (PPS 2014).

Policy Implications: There are no policy implications as the NHN criteria for ANSIs are consistent with policy 3.2.3.4(f) and Section 3.3.6 of the VOP 2010.

7.7 Environmentally Significant Areas

Criteria: All Environmentally Significant Areas (ESAs) are included within the NHN.

Justification: Sites identified as ESAs support areas considered to be some of the most critical and/or sensitive natural heritage features and functions important to protecting biodiversity within the City of Vaughan.

Policy Implications: There are no policy implications as the NHN criteria for ESAs are consistent with policy 3.2.3.4(f) and Section 3.3.6 of the VOP 2010.

7.8 Significant Wildlife Habitat – Amphibians

Criteria: Amphibian Breeding Habitat - Woodland (MNR 2012)



Justification: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations

Criteria: Amphibian Breeding Habitat – Wetlands (MNR 2012)

Justification: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.

Policy Implications: There are no policy implications as the NHN criteria are consistent with policy 3.2.3.4(d) and section 3.3.4 of the VOP 2010.

7.9 Significant Wildlife Habitat - Birds

Criteria: Open Country Bird Breeding Habitat (MNR 2012)

Justification: This wildlife habitat is declining throughout Ontario and North America. Species and records show Open Country breeding birds have declined significantly over the past 40 years based on CWS (2004) trend records.

Criteria: Shrub/Early Successional Bird Breeding Habitat (MNR 2012)

Justification: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.

Criteria: Woodland Area-Sensitive Bird Breeding Habitat (MNR 2012)

Justification: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area-sensitive interior forest song birds.

Policy Implications: There are no policy implications as the NHN criteria are consistent with policy 3.2.3.4(d) and section 3.3.4 of the VOP 2010.

7.10 NHN Enhancement Areas

Enhancement Areas are NHN areas without obvious natural heritage core features, enhancement areas may be present among and between core features or they may represent potential open habitat core areas. Enhancement Areas are identified for inclusion in the NHN to achieve a variety of ecological objectives which may include:

- providing ecological linkage functions (Linkage Enhancement Areas);
- protection of the Critical Function Zones (CFZ)for wetlands (CFZ Enhancement Areas);
- meeting specific habitat requirements for target species such as area sensitive species (Target Species Enhancement Areas); and



- contributing to the size and quality of core areas by reducing edge effects and establishing or increasing “interior habitat conditions” (Interior Habitat Enhancement Areas).

Criteria: *Linkage Enhancement Areas* are defined based on maintaining a minimum width along a linkage corridor. Local corridors have a minimum width of 50 to 200 metres while regional corridors have a minimum width of 300 to 400 metres (Section A.2.3.5 Natural Heritage Reference Manual, MNR 2010).

Justification: Ecological linkage among natural heritage features such as woodlands and wetlands is critical for wildlife functions that include daily, seasonal or long-term movement within the landscape, such as:

- daily movement patterns related to foraging, predation, avoidance, and resting, etc.;
- seasonal movement to support breeding in ponds and foraging in woodlands; and
- long-term dispersal and/or re-colonization movement among habitat patches to sustain meta-populations.

Criteria: *Interior Habitat Enhancement Areas* are defined based on achieving minimum habitat patch size required for interior habitat. Interior habitat for area sensitive woodland species is generally considered to be associated with a minimum patch size of 10 to 25 ha or with a minimum 100 m buffer around all woodland sides. Interior habitat for area sensitive open country species is associated with a minimum patch size of 20 to 40 ha.

Justification: Many of the remaining woodlands patches present do not have “interior woodland” and as such these woodlands may not be able to provide the same ecological functions that support high biodiversity which once existed in the undisturbed growth woodlands that dominated southern Ontario, particularly where urban development surrounds woodland patches. The ability to protect the full range of native woodland species diversity increases as the size of core areas increases, and as their shape becomes more regular (circular or square). Core areas that fall below certain size thresholds are incapable of providing suitable habitat for a large number of species that require large areas of habitat. These are frequently referred to as “area-sensitive” species. This is largely attributed to environmental conditions along the edges of cores (edge effects) that create light levels, soil and air moisture levels, ambient wind and temperature that are significantly different from conditions that characterize the “core interior”. Edge effects have been shown to penetrate 100 to 300+ metres into a forest patch. Thus to obtain one hectare of “interior conditions” buffered by the minimum 100 edge, requires a circular patch size of approximately nine hectares. However, one hectare of interior habitat does not provide sufficient habitat for the many area-demanding species common to southern Ontario and of the historic vegetation that sustained these species prior to European colonization, as such patch sizes much larger than nine hectares are required.



Criteria: *Critical Function Zone (CFZ) of Wetlands Habitat Enhancement Areas* are protected based on “a good understanding of the local biophysical context, hydrologic regime and the species using the given wetland, as well as the nature and extent of their non-wetland habitat requirements of these species” (Environment Canada 2013). Based on current scientific knowledge, the literature increasingly indicates that the habitat requirements for wildlife that depend on wetlands tend to result in the widest and most varied CFZs and these generally are in the order of 100 metres or more (see Table 3 in Environment Canada 2013).

Justification: Environment Canada (2013) provides the following description of the CFZ: “non-wetland areas within which biophysical functions or attributes directly related to the wetland occur. This could, for example, be adjacent upland grassland nesting habitat for waterfowl (that use the wetland to raise their broods). The CFZ could also encompass upland nesting habitat for turtles that otherwise occupy the wetland, foraging areas for frogs and dragonflies, or nesting habitat for birds that straddle the wetland-upland ecozone (e.g., Yellow Warbler). A groundwater recharge area that is important for the function of a wetland but located in the adjacent lands could also be considered part of the CFZ. Effectively, the CFZ is a functional extension of the wetland into the upland.”

Criteria: *Target Species Enhancement Areas* are identified based on habitat requirements considered necessary to sustain specific significant species. The NHN has identified three such areas. Three areas have been identified based on the requirements of Open Country Breeding Birds, the criteria used for two of the Enhancement Areas are based on the minimum habitat (40 ha) required to sustain Area Sensitive Open Country breeding birds and one area is defined based on the presence of suitable habitat for a Special Concern Open Country Breeding Bird (Common Nighthawk).

Justification: Suitable wildlife habitat for many species is declining throughout Ontario as evidenced by the increasing number of Species at Risk identified by the Ministry of Natural Resources. For Open Country breeding birds records show these have declined significantly over the past 40 years based on CWS (2004) trend records.

Note: At this time, Enhancement Areas to augment interior woodland conditions or to protect the CFZ of wetlands are not identified either in the urban area designations or in the Greenbelt Plan or Oak Ridges Moraine Conservation Plan areas. Rather, the criteria and justification for interior woodland enhancement and enhancement to protect the CFZ of wetlands is provided in this report and can be incorporated into the Terms of Reference for appropriate studies, such as a Master Environment and Servicing Plan (MESP) or environmental impact study (EIS) for appropriate development applications.



8.0 PROPOSED SCHEDULE MODIFICATIONS

The VOP2010 Schedule 2 Natural Heritage Network (Figure 5) will be updated to reflect current conditions in the City of Vaughan. This will include the removal of some areas of the NHN based on existing or approved development, as well as the addition of some areas based on the application of criteria described in Section 7.

To provide greater understanding of Schedule 2, three additional supporting Schedules are proposed for the VOP 2010 as follows:

- Schedule 2a Hydrologic Features and Valleylands (Figure 6);
- Schedule 2b Woodlands (Figure 7); and
- Schedule 2c Significant Wildlife Habitat (Figure 8).

The information proposed for presentation within each schedule is shown in the legends below.

Schedule 2A – Hydrologic Features and Valleylands

Legend

- Provincially Significant Wetlands
- Other Wetlands (may include evaluated wetlands that are not Provincially Significant or non-evaluated wetlands¹)
- Surface Water Features² (headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs)
- Crest of Slope Screening Layer for Valleylands³

¹ non-evaluated wetlands shall be assessed for their significance, in accordance with criteria provided by the Province, and to determine their importance, functions and means of protection to the satisfaction of the City.

² to be confirmed through the application of policies of this plan

³ to be confirmed on a site specific basis

Schedule 2B – Woodlands

Legend

- Woodlands (> 0.5 ha)

Schedule 2C – Significant Wildlife Habitat^{1,2}

Legend

- SWH Amphibian Breeding Habitat – Woodlands
- SWH Amphibian Breeding Habitat – Wetlands
- SWH Special Concern Open Country Breeding Birds
- SWH Area Sensitive Open Country Breeding Birds
- SWH Shrub/Early Successional Breeding Birds
- SWH Area-Sensitive Woodland Breeding Birds



- ¹ Significant Wildlife Habitat (SWH) determined through the application of Ministry of Natural Resources *Draft* SWH Ecoregion 7E Criterion Schedule (February 2012)
- ² Schedule 2C does not show all SWH in the City of Vaughan. Site-specific assessments may identify additional significant wildlife habitat in accordance with criteria established by the Province.



Figure 5: Schedule 2 Natural Heritage Network

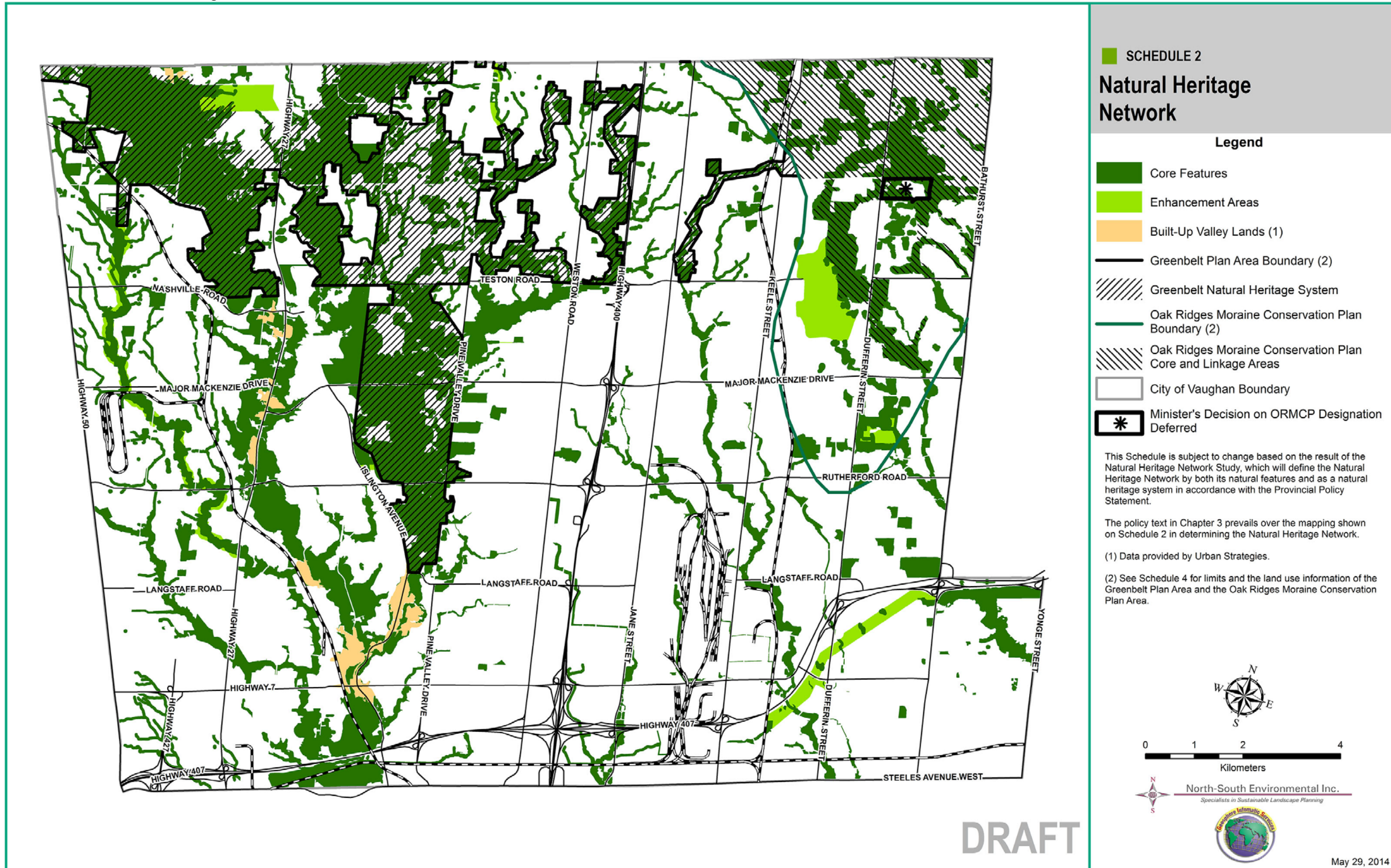


Figure 6: Schedule 2a Hydrologic Features and Valleylands

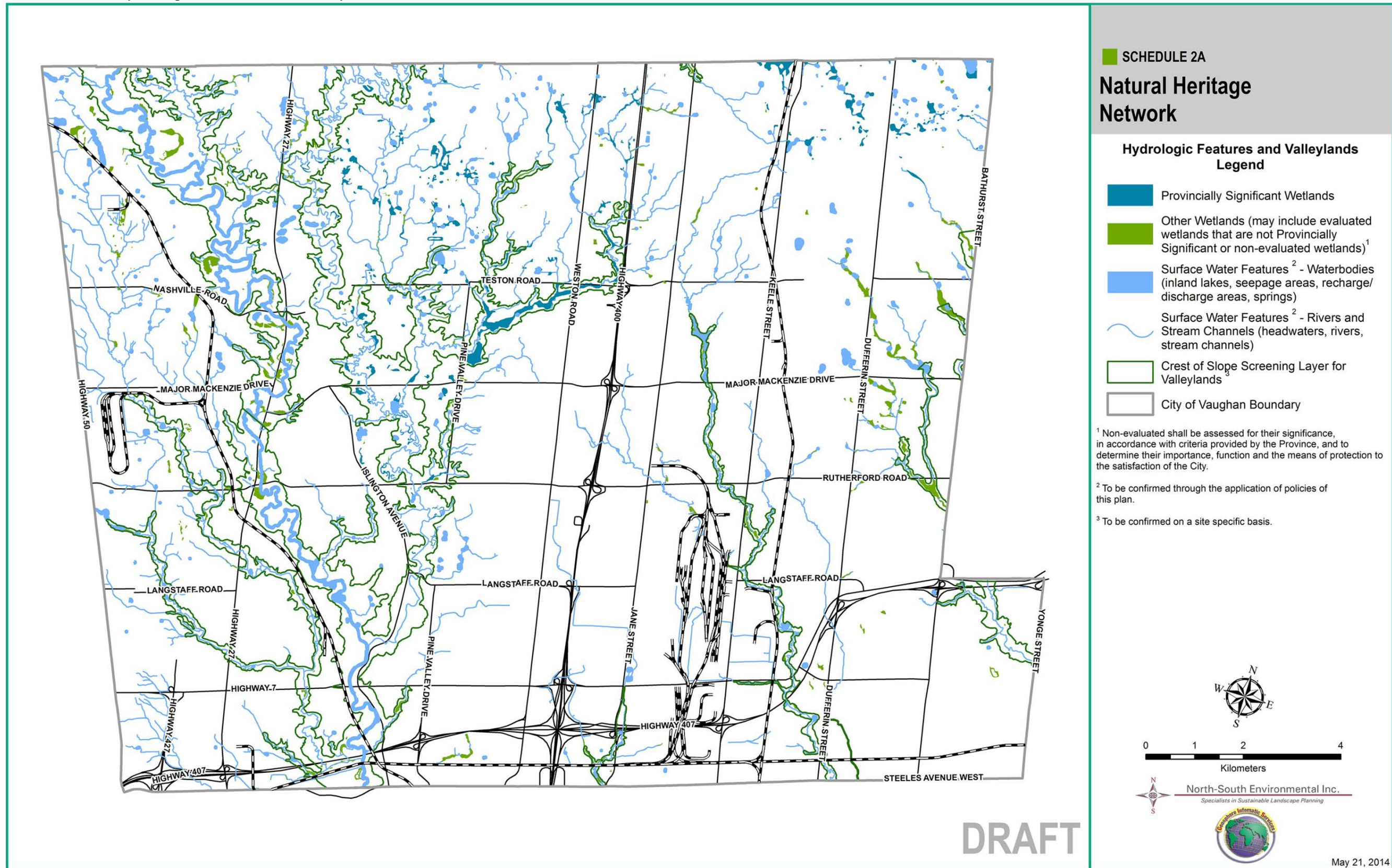


Figure 7: Schedule 2b Woodlands

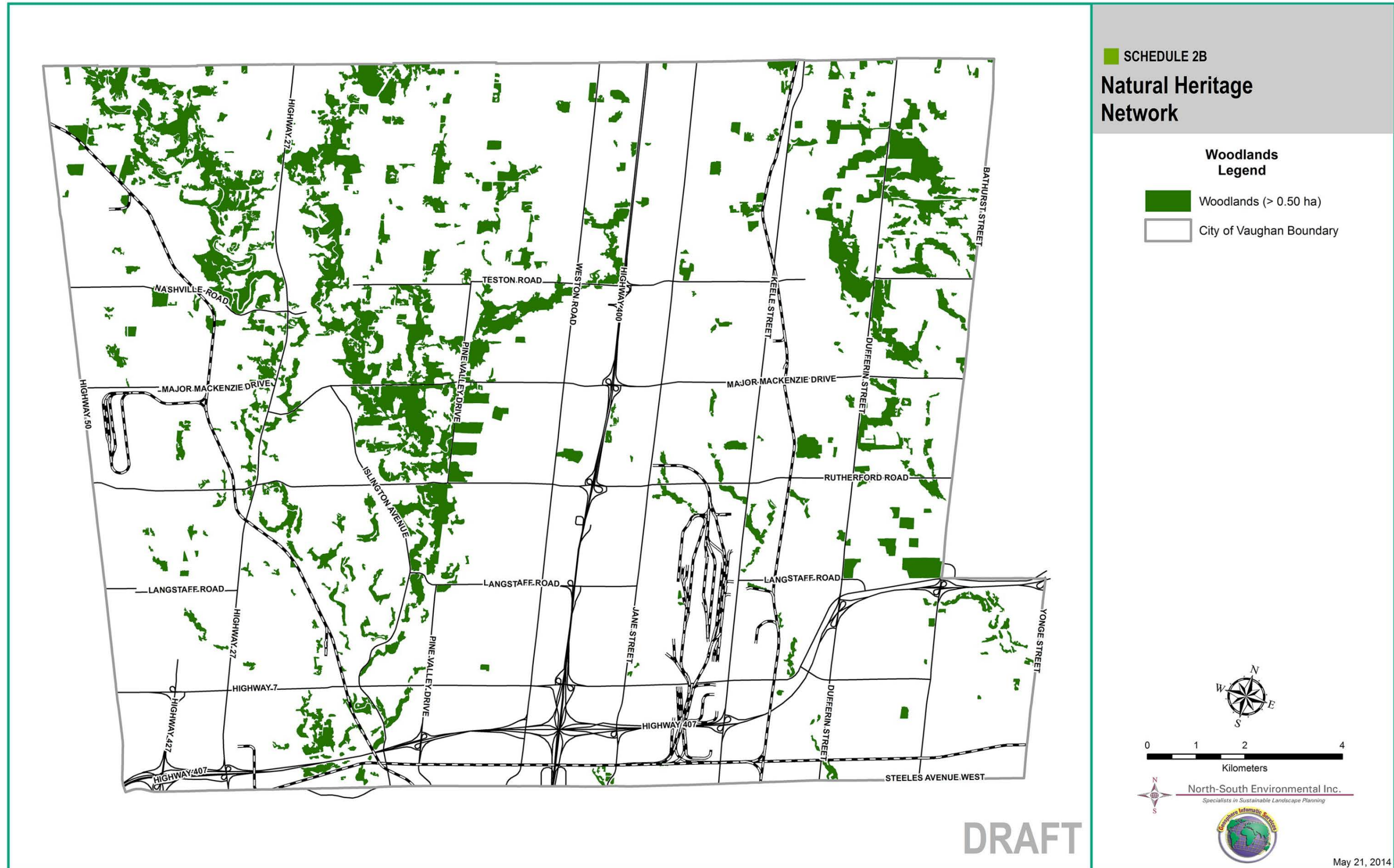
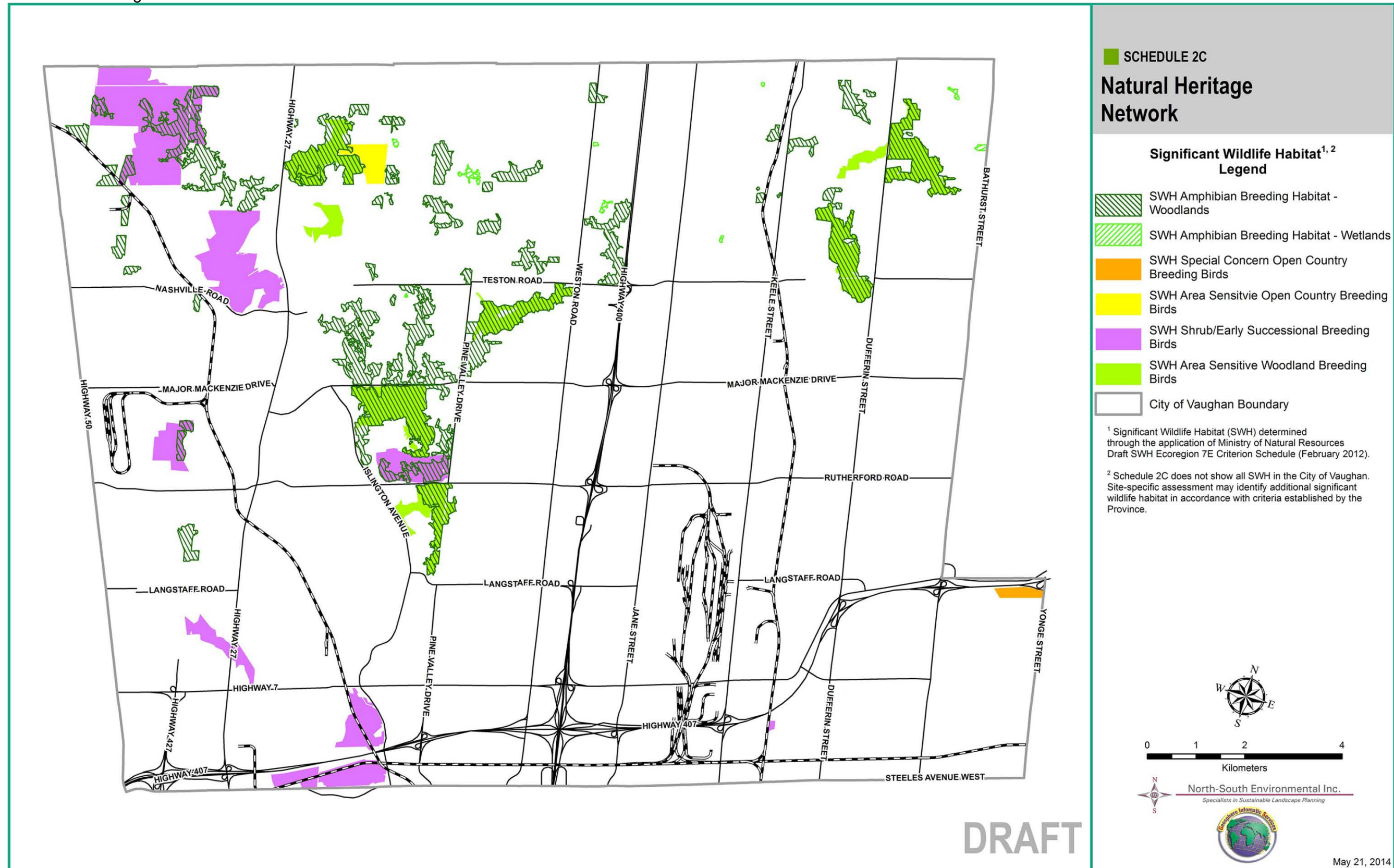


Figure 8: Schedule 2c Significant Wildlife Habitat



9.0 SCENARIO TESTING OF VAUGHAN'S NHN

Scenario testing is a means to assess the ability of Vaughan's NHN to achieve ecosystem targets aimed at protecting viable habitat that will provide long term protection of native biodiversity. Scenario testing involves an assessment of natural heritage features and functions as they currently exist within the NHN and the evaluation of scenarios that enhance the existing features and functions to better achieve certain ecosystem targets. Table 6 provides an assessment of baseline conditions within the NHN

The following ecosystem targets were established in the NHN Phase 1 study and they are based on guidelines from the Canadian Wildlife Service (CWS) publication "How much habitat is enough?" (Environment Canada 2013).

Woodland Cover

CWS Forest Habitat Guideline	Forest Habitat in Vaughan
At least 30% forest cover	11 %
At least 10% of forest cover should be interior forest >100 m from edge	0.5 %
At least one large contiguous forest within each watershed (>200 ha)	Humber Watershed largest forest – 152 ha Don Watershed largest forest – 92 ha

Wetland Habitat

CWS Wetland Habitat Guideline	Wetland Habitat in Vaughan
At least 10% wetland habitat	1.5%
Protection of a Critical Function Zone (CFZ) of 100 m from edge of wetland	40 % of 100m CFZ protected by natural cover (woodland, successional & meadow)

Riparian Habitat

CWS Riparian Habitat Guideline	Riparian Habitat in Vaughan
75 % cover along streams	30 % of stream length in Vaughan have forest cover within 3 m of stream banks
30 m buffer along streams	45 % of stream length has some forest cover within a 30 m buffer along stream banks

Table 6 provides baseline conditions in Vaughan against which ecosystem targets may be tested. Achieving ecosystem targets can be projected through scenario testing that considers potential contributions to core features of the NHN such as:

- Improving habitat within the existing NHN (i.e. disturbed valleylands and similar 'open space' lands protected through development approvals) can substantially increase progress to select ecosystem targets, such as overall woodland cover. This will have an overall benefit in the provision of ecosystem services, but does not address ecosystem targets related to interior woodland or the Critical Function Zone of wetlands.



- Restoration of Greenbelt Plan lands in areas of planned urban development, such as the Hwy 400 North Employment Lands and New Community Areas, also improves overall woodland cover and incrementally improves the Critical Function Zone of select wetlands. Much of the Greenbelt Plan area in the City of Vaughan has been identified to include wetlands, such as the recently evaluated East Humber Provincially Significant Wetland Complex.
- Making the assumption of habitat restoration for the minimum vegetation protection zone of natural features (Note: in the Greenbelt Plan and ORMCP areas this is only a scenario for the purposes of the NHN Study, the City encourages agricultural practices in the Provincial Plan areas and recognizes, as in policy 2.1.9 of the PPS, that the NHN is not intended to limit the ability of agricultural uses to continue). However, the significant improvement in advancing measures towards select ecosystem targets makes stewardship and conservation land securement of importance for the City to balance agricultural uses and natural heritage improvements in these areas. NHN improvement is not necessarily limited to habitat restoration in the Greenbelt Plan and ORMCP areas as changes to farming practices may: provide habitat, such as for open country species; provide functionally connected landscapes between woodlands; and improve overall water quality while still limiting impacts on agricultural uses.

Examples showing approaches to achieving ecosystem targets defined for Vaughan through restoration of natural vegetation are provided in Figures 9 to 12, which add to existing areas of woodland, wetland and riparian cover. Within the NHN identified for Vaughan, including areas within the Greenbelt NHS and Oak Ridges Moraine Core and Linkage Areas, there are areas available for restoration. These areas may include the Vegetation Protection Zone identified for core features such as woodlands, wetlands and watercourses (Figure 9), areas within valleylands where core features are not present (Figure 10), NHN Linkage Enhancement Areas (Figure 11) and suitable areas within the Greenbelt and Oak Ridges Moraine (Figure 12).



Table 6: Scenario testing of NHN baseline conditions of existing natural heritage features and functions

NHN Statistics (January 2014)	Vaughan ha / #	Vaughan %	NHN ha / #	NHN %
Total Area	27,435	100	7,053	25.7%
Woodland Cover	3,113.30	11.3%	2,976	10.8%
Interior Woodland (minimum 100m edge)	140	0.5%	134	0.5%
Largest Woodland Patch - Don Watershed	92			
Largest Woodland Patch - Humber Watershed	152			
# of Woodland Patches - Vaughan	662			
# of Woodland Patches - Don Watershed	194			
# of Woodland Patches - Humber Watershed	475			
# of Woodland to Woodland Linkage Patches (30m minimum separation)	428	64.7%		
Wetland Cover	422	1.5%	408	1.5%
Wetland CFZ - 100m	3,340	100.0%	2,127	63.7%
Wetland CFZ - 200m	6,921	100.0%	3,545	51.2%
Natural Cover within Wetland CFZ - 100m	1,458	43.7%	1,330	39.8%
Natural Cover within Wetland CFZ - 200m	2,568	37.1%	2,287	33.0%
# of Wetland to Woodlands Linkage Patches (30m minimum separation)	429	72.5%		
Meadows	1,563		928	
Successional Woodlands	2,29		137	
Riparian Zone	2,912	100.0%	2,256	77.5%
Natural Cover within Riparian Zone	1,379	47.3%	1,295	44.5%



Figure 9: Potential restoration areas shown in yellow are within the Vegetation Protection Zone of woodland (green), wetland (blue) and riparian areas (blue watercourse line).

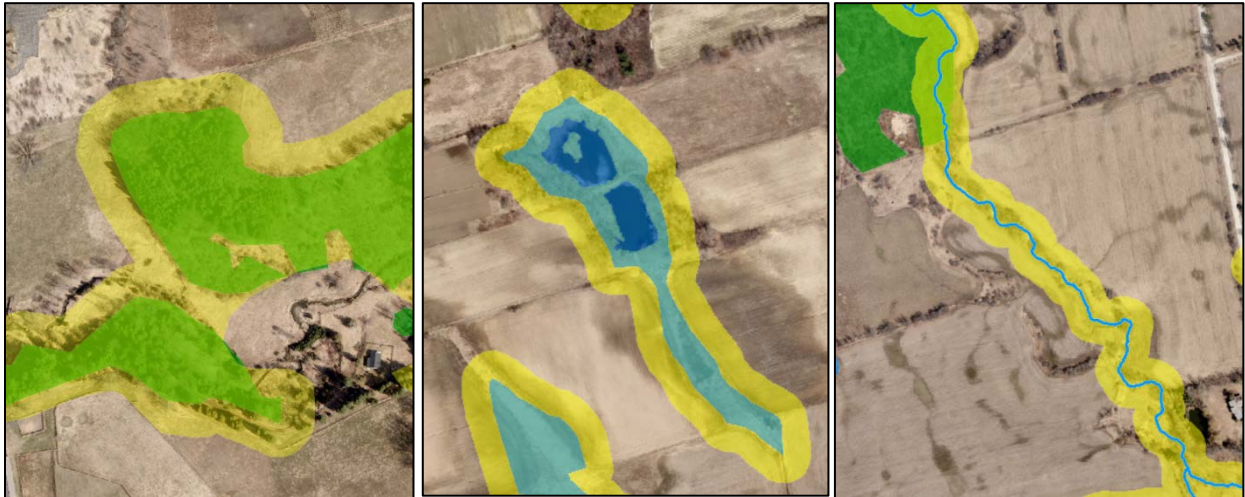


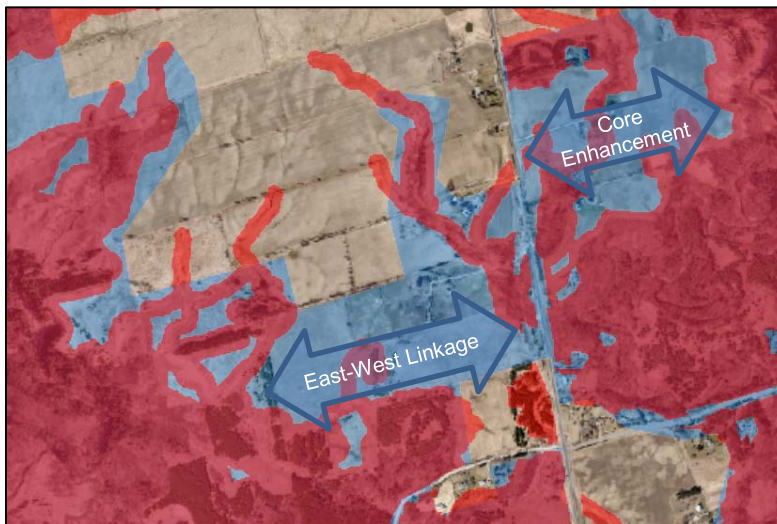
Figure 10: Potential restoration areas shown in orange have been identified to maintain a minimum width along an ecological linkage corridor associated with NHN Cores Area shown in red



Figure 11: Potential restoration areas shown in yellow within valleylands defined by crest of slope (orange line) to restore native floodplain communities such as bottomland woodland (green areas).



Figure 12: Potential restoration areas shown in blue within the Greenbelt Natural Heritage System may contribute to regional ecological linkage and the establishment of large habitat patches contributing to NHN Core Areas shown in red. While Enhancement Areas have not been specifically delineated in the Greenbelt Plan or Oak Ridges Moraine Conservation Plan areas, this figure depicts examples of potential restoration areas that serve as an east-west linkage and core woodland enhancement.



10.0 LAND STEWARDSHIP STRATEGY

This City of Vaughan Conservation Land Securement Strategy is a comprehensive conservation land securement planning document that includes recommendations and implementation guidelines for establishing on-the-ground program delivery in Vaughan.

Conservation land securement is the legal acquisition of natural areas or natural heritage lands through a range of land securement methods to facilitate long-term protection of land in perpetuity. It requires a willing seller/donor and a willing buyer/recipient. Such lands are generally held in public or non-profit ownership with the goal to maintain, if not protect, restore and enhance the natural features and their contribution to a larger ecological system. These lands typically result in the formation of parks, trails, conservation areas, nature reserves, etc. Conservation land securement differs from land procurement which is the acquisition of land that could be considered 'disposable' land assets (although disposition of portions of parcels may be advisable in unique cases).

The advantage of conservation land securement is that there are a range of securement methods available to the City, its partners, and the landowner that can adapt to each securement project on a case-by-case basis. This creates a win-win solution that will benefit the environment and all parties.

Conservation land securement can be done by any organization where their focus is solely on land securement (i.e. a land trust) or on larger conservation issues (i.e. a Conservation Authority). Conservation land securement could also be one component of a larger, public benefit mission (i.e. a municipality or provincial government), provided that the government body commits to the long-term protection of such properties. Conservation land securement can be facilitated on an ad-hoc basis; however this is not an efficient use of limited resources within an organization. Implementation of the Strategy can take several years to foster relationships with landowners and coordinate the work necessary to initiate each securement project. Considering the diverse range of conservation land securement tools and processes, an experienced staff member or consultant is typically required to oversee implementation of the strategy. See Table 1 for the basic steps of a conservation land securement project. The complete Conservation Land Securement Strategy (Orland Conservation 2014) proposed for Vaughan is provided under separate cover.



11.0 CONCLUSIONS AND NEXT STEPS

The NHN Study deliverables, including proposed amendments to select policies and Schedule 2 (Natural Heritage Network) of the VOP 2010, will be integrated into corporate objectives by:

- Providing a comprehensive database of natural features and areas, as part of a connected natural heritage system, for use in the review of development applications and as a baseline of digital data in a Geographic Information System (GIS) for ongoing tracking and monitoring;
- Providing further details for evaluation of the NHN and environmental aspects in Master Environment and Servicing Plans (MESPs) and Environmental Impacts Studies (EIS) related to development applications;
- Informing the subwatershed studies and Secondary Plans for the New Community Areas;
- Informing the City's input to the GTA West (Transportation Corridor) Study;
- Informing the City's input to the upcoming provincial review of the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan; and
- Providing the framework for a work plan to improve the NHN over time, such as through actions related to ecological restoration, habitat management, landowner liaison for stewardship activities, and securing funding for stewardship and land securement objectives.

Immediate next steps include obtaining further public input prior to the finalization of the NHN study and proposed amendments to select policies and schedules of the VOP 2010. Ongoing implementation efforts include mid-term and long-term actions such as documented below.

- The City of Vaughan Environmental Management Guideline will be updated to incorporate key results of the NHN Study.
- The NHN Study emphasized refinement of the criteria and mapping of Core Features and Enhancement Areas of the NHN. As a result, refinement of the Built-up Valley Lands component of the NHN is required given changes to Core Features. This is also a component of ongoing tracking and monitoring of NHN improvement over time.
- Identify aspects of the Conservation Land Securement Strategy for implementation using stewardship and securement approaches to complement NHN securement through the development review process.



12.0 REFERENCES

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APPENDIX 1: COMMUNITY ENGAGEMENT



Appendix 1: Community Engagement

Community Stakeholder Workshops

- Community sessions - Monday October 21, 2013 - 1:00 p.m. 3:00 p.m. and 5:00 p.m. - 7:00 p.m. at City of Vaughan
- Environmental Non-Government Organizations (ENGOS) session – Monday, March 3rd, 2014, 1:00-3:00 p.m., at City of Vaughan
- Sustainable Vaughan – March 24, 2014
- Kleinburg Area Ratepayers Association (KARA) – March 27, 2014

OVERVIEW

Five stakeholder sessions were held between October 21st, 2013 and March 27, 2014 to discuss Vaughan's Natural Heritage Network Study. These sessions were advertised to a wide range of external stakeholders representing: government and agencies (including adjacent municipalities and local conservation authorities), educational institutions, environmental groups, community groups and residents associations, recreational facilities, business and development organizations, local utilities and transit, and arboriculture firms. Numerous individuals from eleven organizations participated in the sessions. Each session began with welcoming remarks from Tony Iacobelli (Project Manager, City of Vaughan), followed by a presentation on the project given by Brent Tegler (North-South Environmental, Project Lead for the consulting team). The meeting with Sustainable Vaughan was attended by Tony Iacobelli and two representatives of Sustainable Vaughan. Susan Hall from Lura Consulting facilitated the community discussions and solicited input from participants. The purpose of the workshops was to obtain input from stakeholders including: (1) existing or potential future initiatives that may contribute to the NHN; (2) opportunities and constraints that influence the NHN; (3) suggestions for evaluating criteria to establish the NHN scenarios.

The key themes and discussion points from the stakeholder workshops are summarized below. Much of the discussions were focused on clarifying the scope of the study including understanding the natural heritage features and enhancement areas.
[insert key points from KARA and ENGO sessions]

KEY DISCUSSION POINTS

Opportunities

- **Official Plan:** The NHN plan will provide an opportunity to clearly identify planning practices for natural heritage. It should be part of the Official Plan and be connected to recommendations in the secondary and block plans.
- **Greenbelt and Oak Ridges Moraine:** The Greenbelt and Oak Ridges Moraine have helped Vaughan manage growth and are helping to preserve natural heritage land.

Constraints

- **Utility Corridors:** One participant asked if there will be regulatory development limits imposed for utility corridor development as part of the NHN. Tony clarified that the regulatory limits are outlined in the City of Vaughan Official Plan.
- **Land Securement:** One participant asked if the City of Vaughan will be purchasing land for the NHN. The consulting team will be providing an overall



strategy to address land securement options, including easements, land donations and stewardship agreements. If land securement is a priority for Vaughan, the NHN plan could recommend setting up a fund to purchase land as one of its goals.

Evaluation Criteria

Participants suggested the following elements should be considered as part of the evaluation criteria to select the NHN scenarios:

- Environmental linkages;
- Quality of forest cover;
- Buffers on a site specific basis;
- Impacts of disease and infections;
- Impacts of invasive species; and
- Clearly define the woodlot criteria and requirements.

Additional Discussion Points

- **Fill regulations:** One participant asked if fill regulated areas are included in the NHN. Tony indicated that the perspective of the NHN is ecological and that the NHN is based on the Toronto and Region Conservation Authority (TRCA) limits on fill regulated areas as identified in their guidelines.
- **Species at risk:** One participant asked how the NHN will address species at risk. Brent indicated that any delineation of the NHN will not detract from the Species At Risk legislation. Vaughan has conducted studies on species at risk that will guide the development of the NHN.
- **Enhancement areas:** One participant asked if meadowlands were becoming a significant component of enhancement areas. Brent and Tony indicated that meadowlands are one of the areas that the City is reviewing for the NHN in relation to significant wildlife habitat as defined in accordance with Provincial guidelines.

STAFF SESSION

- Wednesday November 30th, 2013 – 9:30 a.m. - 11:30 a.m. at City of Vaughan

OVERVIEW

A staff session was held on October 29th, 2013 to provide an update on the Vaughan NHN Study and to discuss the relationship of the NHN to other studies and projects underway or planned for the City. Seventeen staff members participated from a wide range of departments including Development Planning, Parks Development, Building Standards, Policy Planning, Parks and Forestry, Sustainability, Transportation Engineering, Asset Management, ITM, Innovation/Continuous Improvement and Engineering Services.

The session began with welcoming remarks from Tony Iacobelli (Project Manager, City of Vaughan), followed by a presentation by Brent Tegler (North-South Environmental, Project Lead for the consulting team). Susan Hall from Lura Consulting facilitated the discussions and solicited input from participants. The purpose of the workshops was to obtain input including: (1) existing or potential future initiatives that may contribute to the



NHN; (2) opportunities and constraints; and (3) decision-making criteria to inform the assessment of the NHN against ecosystem targets.

The key themes and discussion points from the staff session are summarized below.

KEY DISCUSSION POINTS

Linkages to Other City Plans and Projects

Staff indicated there are a number of existing and planned initiatives that are linked to the NHN such as:

- **Vaughan Transportation Master Plan** (complete) that includes comprehensive city-wide GIS map including all planned transportation initiatives until 2031. A key consideration from the transportation perspective is that a lot of the projects are not driven by the City, but by the province and region.
- **York Region Transportation Master Plan and 10-year capital roads program** (updating in 2014) will be beneficial to review and consider if the timing aligns.
- **GTA West Corridor** project will have impacts.
- **Water /Wastewater Master Plans** (complete). There are no major trunks that will cross the NHN areas identified. Individual projects may need Class Environmental Assessments and would have consideration of the environmental and ecological impacts to the NHN as part of that process. New maps will be available in January, 2014 that may be of benefit.
- **Regional Water and Wastewater Class EA projects** should also be considered.
- **Stormwater Management Master Plan.** The City currently has 100 ponds and has an additional 110 ponds planned. The existing ponds are documented in City database in GIS format. Cooling trenches have been used in association with SWM ponds for thermal regulation.
- **ITM** is currently updating GIS maps for the City currently.
- **Archeology and History.** The City is working with York Region to map sites with high archeological potential in GIS formats. Archeological sites cannot be shared as they are confidential.
- **Woodlot Management Strategy** (being developed) that should be considered.
- **Sustainability.** There are a number of projects underway that can support the NHN.

Constraints

The NHN and land securement elements (e.g. easements) do not apply under the building code, this needs to be addressed through zoning or site planning agreement process which would permit development to continue and support the NHN areas.

Opportunities

A key recommendation is to engage community members and neighbourhood groups (e.g. adopt a park program, restoration and stewardship activities, etc.) in implementation.

Additional Discussion Points



- **Approvals:** One participant asked if there are any provincial approvals needed for the NHN. Tony clarified that the NHN is approved through the Official Plan Amendment.
- **Landowner Buy-In:** One participant asked about the need for landowner buy-in to the process. Tony and Brent indicated that discussions are taking place with landowners and their representatives for the blocks planned for development. Stakeholder consultation is also underway for other groups as well.
- **Operations and Finance:** One participant asked if there will be operation standards for maintenance to be performed in the NHN study areas. Another asked if the study will include estimates for capital and operating costs. Tony indicated that the costing is not part of the scope of work for this phase of the project and that costing will be part of Program of Work (e.g.: review impact assessments, tracking NHN database, land stewardship piece, etc.). This will likely be noted in the staff report for further assessment to determine a budget for a program of effort related to managing the NHN.
- **Stormwater Management:** One participant asked if there will be recommendations relating to stormwater management design and operations as part of the NHN study. Brent indicated that the team acknowledges there are ecological functions in stormwater management pond that should be considered and that these ponds may be contributing to some of the wetland functions that naturally exist (recognizing these as secondary functions). Tony indicated that stormwater management ponds are identified currently in Schedule 2 as Enhancement Areas, but will likely be removed from the revised NHN

COMMUNITY FORUM

- November 13th, 2013 - 6:30 to 9:00 p.m., City of Vaughan

OVERVIEW

The City of Vaughan hosted a Community Forum to seek community input for both the Natural Heritage Network Study (Phase 2-4) and the Climate Action Plan as both projects fall under the *Green Directions Vaughan*, the City's Community Sustainability and Environmental Master Plan. In total there were 57 participants. The forum was advertised in the local paper, on the City website, distributed to all stakeholder who had participated in earlier sessions, posted on the City's social media feeds and invitations were issued to an extensive list of residents through the Planning Department. The community forum featured an open house from 6:30 – 7:00 p.m. and marketplace where participants could find out about other programs and projects by the conservation authority, Enbridge, Powerstream, Earth Hour and others. The forum began with welcoming remarks from John MacKenzie (Commissioner of Planning, City of Vaughan), followed by an overview presentation about the two projects given by Susan Hall from Lura Consulting. The remainder of the evening was dedicated to a world café format. The first station was dedicated to the Climate Action Plan where there was a brief overview presentation provided by Chris Wolnik and Jeff Garkowski (City of Vaughan and Lura Consulting) about the CAP and participants were encouraged to provide their input to the CAP vision, goals and key actions.



The second station was dedicated to Land Securement, where Kate Potter (Orland Conservation) provided participants with an educational presentation on the variety of options that exist for land securement beyond land purchase. Kate reviewed the features of land donation, split receipt, conservation severance, bequest, conservation easement agreement and life interest agreement.

The third station was dedicated to the NHN and included a brief overview presentation by Brent Tegler (North-South Environmental consultant lead for the NHN study) followed by a facilitated discussion.

KEY QUESTIONS AND DISCUSSION POINTS FOR THE NHN

NHN Draft Vision Statement

One participant asked what defines resiliency. This should include resiliency to climate changes and increases to biodiversity.

Greenbelt

- One participant asked if the core features in the Greenbelt are treated the same as those outside of the Greenbelt. Brent indicated that they are treated the same but those outside of the Greenbelt require environmental impact study if they are within the area of influence or 'adjacent lands'.
- One participant felt that the Greenbelt does not necessarily mean longevity in terms of preservation and that the NHN should be connected and supportive of the Greenbelt areas.

Enhancement areas

One participant asked if enhancement areas cover all other areas. Brent indicated that they do not and that different features perform different functions. Enhancement areas currently identify lands with a different underlying designation, such as for development or agriculture, but are intended to be evaluated to determine how much of an Enhancement Area should be a Core Feature.

Data sources

- A few of participants asked about the data sources used to create the NHN map. Brent explained that the maps were created from existing digital sources and orthomaps. He indicated that the open space layer is using historical data that doesn't show features within the boundaries. The meadowlands layer was created through interpretation of TRCA data at a high level.
- Brent indicated that mapping is an iterative process and if there are any errors the City is interested in gathering that information.

Meadowlands

A few participants asked how meadowlands would be considered in the NHN. Brent indicated that the study team is still considering meadowlands. The NHN could include large significant areas of meadow that provides habitat and ecological functions, such as for significant wildlife habitat. This is a piece of the NHN that requires further discussion.

Restoration

One participant noted they would like restoration to be included in the NHN.

Evaluation Criteria:

- A number of participants noted that increasing the forest cover is an important evaluation criterion in developing the NHN scenario.



- Participants asked how much forest cover does Vaughan currently have and asked if the NHN should focus on areas that already have some protection through other legislation (Greenbelt or Oak Ridges Moraine) or whether the NHN should focus on those areas not currently protected. Brent indicated that the City currently has 11% forest cover and that the study will look at both strategies to build on existing protection as well as areas that are not currently protected.
- Wetlands are an important part of the natural heritage of Vaughan and participants noted they should be protected.
- Wetland design criteria for stormwater management ponds should be considered. There are opportunities to test new innovations that can bring value to the NHN.
- Increased connectivity is an important criterion as well as increasing the interior forest area.

Costs

- A few participants cautioned that there are costs associated with natural heritage protection and restoration activities. Consideration needs to be given both the actual costs of restoration, the opportunity costs to developers, the natural services costs for restoration.
- A few participants also cautioned that the costs for these activities can increase the cost of housing and affordability of homes particularly given density targets.

ONLINE PUBLIC QUESTIONNAIRE

OVERVIEW

Ten members of the public participated in the online survey that was made available at the public meeting November 13th, 2013 and remained open until December 31st, 2013. The survey was designed to provide participants with an opportunity to provide comments and suggestions on the proposed vision, identify opportunities and constraints facing the NHN, and provide input to the scenario criteria. The key themes emerging from the online survey are summarized below.

Vision

- Four participants indicated that they liked the vision statement.
- Two respondents asked that enhancement areas be removed and another suggested that it needs to be clearly defined.

Assets and Opportunities

- The following key assets were identified for further protection:
 - valleys of the three major river systems;
 - ANSIs;
 - wetlands;
 - existing hedgerows made up of native mature trees and regenerating understorey;
 - woodlots that are composed of understorey, mid-storey;
 - canopy growth;
 - very large existing linked corridor system (western part of Vaughan);
 - large tract (NE Vaughan); and
 - heritage protection of Maple, Kleinberg and Woodbridge.



- One respondent suggested the City continue to work closely with the conservation authority to protect, manage and enhance the NHN.
- One respondent indicated more lands should be protected through the NHN to support and buffer core areas.
- One respondent noted the opportunity lies in part with political leaders to define the NHN as part of what makes Vaughan a great place.

Gaps and Constraints

- Four respondents noted development pressures.
- One respondent noted that there is a challenge to promoting the value of the NHN when seeking to protect it at the expense of other infrastructure expenditures. There is an opportunity to create a comprehensive NHN publicity campaign.
- One respondent noted gaps in protection along the Humber River where there are portions that are publically owned & managed conservation. There is an opportunity to fill gaps and convert the full length to public ownership.
- One respondent noted the replacement value of trees is not recognized.
- One respondent noted that enhancement areas are speculative.
- One respondent noted financial constraints to achieving a properly managed NHN. There are opportunities to invest in protection of our natural features today to ensure a healthier environment to live & sustain our lives tomorrow.
- One respondent noted the GTA West Corridor as a constraint.

Evaluation Criteria

Survey participants were asked to identify which of the following criteria they felt are important for the NHN.

- **Forest Cover**
 - 8 of 10 respondents noted that increasing forest cover and the amount of interior forest cover are important criteria.
 - Respondents indicated that increases should occur with a particular focus along streams and rivers, beside larger existing forests, connect smaller woodlands to larger ones and areas that fill gaps in woodlands to increase overall habitat.
 - Respondents indicated that forest cover should increase in areas that provide: (1) buffers between or next to developments; (2) trail linkages for travel by foot or bicycle; and (3) linkages to existing parks and trails.
 - The majority of respondents indicated that increased interior forest cover should: (1) be beside existing larger tracts of forest; (2) connect smaller woodlands to larger woodlands; (3) provide more habitat for specific species that need woodland habitat; and (4) fill gaps in woodlands to increase overall habitat.
- **Wetland Cover**
 - 9 of 10 respondents felt that increasing wetland cover is important in the City of Vaughan and that this should include areas that add to and enhance headwater streams, as well as areas beside valleylands that improve wetland cover as part of stormwater management practices.
 - The majority of respondents also supported increasing wetland cover in areas that restore wetlands to their historical locations and enhance areas that add to and enhance existing wetlands.



- **Critical Function Zones**
 - 8 of 10 respondents felt that it is important to establish Critical Function Zones around wetlands to maintain water quality and to maintain wildlife habitat for wetland species and that critical function zones should be used for wetlands that are located in valleys, in Greenbelt Plan areas, in Oak Ridges Moraine Conservation Plan areas and in association with woodlands or wetlands which are located in close proximity to woodlands.
- **Riparian Zone**
 - 9 of 10 respondents felt that riparian cover should be increased in the City of Vaughan with particular emphasis along headwater streams, as well as streams associated with cold and cool-water fish species.

LANDOWNER MEETINGS

- October 2nd to October 10th in 2013; and
- February 24th to 26th in 2014

OVERVIEW

Twelve landowner meetings were held in two rounds between October 2nd to October 10th in 2013 and between February 24th to 26th in 2014 to discuss Phase 2-4 of Vaughan's Natural Heritage Network Study Strategy. The number of participants at each meeting ranged from 6 to 15. The first meetings were held to discuss the objectives of the study and identify issues and opportunities that shape the study. The second round of meetings were held to review and seek input on the development of proposed NHN scenario criteria. Tony Iacobelli (Project Manager, City of Vaughan) and Brent Tegler (North-South Environmental, Project Lead for the consulting team) conducted the meetings. .

The key themes and discussion points from the meetings are summarized below.

SUMMARY

- The evaluation of HDF were discussed, including specific reaches of watercourses as well as the overall evaluation framework. The City's consulting team had previously shared the raw data from the HDF field investigations where permission to enter lands had been provided by the landowners. Landowners expressed interest that information provided by them according to appropriate standards and procedures would be interpreted in the NHN mapping.
- There was discussion of the criteria for the determination of significant wildlife habitat.
- The role of active restoration was discussed in relation to the development approvals process and the Greenbelt Plan lands.
- Potential changes to the VOP 2010 in terms of policy or schedule modifications were discussed, with reference to specific policies in some cases.

ABORIGINAL GROUPS



The City of Vaughan contacted First Nations and Metis organizations by telephone and E-mail according to the protocol in the draft York Region First Nation and Metis Consultation Tool. The Consultation Tool is a component of Amendment 6 to the York Region Official Plan, including the York Region Archaeological Management Plan, adopted February 20, 2014, establishing specific policies to ensure the responsible management of archaeological resources, as required by Provincial policy and legislation.

The Consultation Tool includes a contact database with over 40 individual contacts for 14 First Nation or Metis organizations. The following consultation meetings were arranged based on the responses to the City's correspondence.

Williams Treaty First Nation, March 26, 2014, Office of the Mississaugas of Scugog Island

The meeting included representative from Chippewas of Georgina Island, Curve Lake First Nation, Hiawatha First Nation and Mississaugas of Scugog Island. The presentation by the City demonstrated the information collected and assessed to refine the NHN. Discussion points included:

- The importance of water from headwater drainage features to the main stem of rivers;
- The traditional knowledge and recent experience with habitat restoration of the black oak savannah, primarily of Alderville First Nation and Mississaugas of Scugog Island.

Nation Huron Wendat, April 28, 2014, Webinar

City staff and a representative from Nation Huron Wendat convened a webinar so that GIS information regarding refinements to the NHN could be viewed in the online webinar format.



APPENDIX 2: SIGNIFICANT WILDLIFE HABITAT CRITERIA



Appendix 2. Significant Wildlife Habitat Criteria (Note: Only examples of areas most likely to have potential significance in Vaughan and may be currently outside the NHN are provided)

Table 1: Examples of criteria for SWH provided by the SWHTG (Section 8.3 & Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: seasonal concentrations of animals. (For details see Draft Ecoregion Schedule 6E and SWHTG)					
Seasonal Concentration Areas	Wildlife Species (Draft Ecoregion Schedule 6E)	CANDIDATE SWH (DRAFT Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
<p>Waterfowl Stopover and Staging Areas (Terrestrial)</p> <p>Rationale; Habitat important to migrating waterfowl.</p>	<p>American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall</p>	<p>CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.</p>	<p>Fields with sheet water during Spring (mid March to May).</p> <ul style="list-style-type: none"> • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH. 	<p>Studies carried out and verified presence of an annual concentration of any listed species</p> <ul style="list-style-type: none"> • Any mixed species aggregations of 100¹ or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). 	<ul style="list-style-type: none"> • Criteria for terrestrial sites not described by SWHTG
<p>Waterfowl Nesting Areas</p>	<p>please see Table 3: specialized habitat for wildlife</p>				
<p>Raptor Wintering Area</p> <p>Rationale; Sites used by multiple species, a high number of individuals and used annually are most significant</p>	<p>Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl</p> <p>Special Concern: Short-eared Owl</p>	<p>Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW.</p>	<p>The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha with a combination of forest and upland. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands</p>	<p>Studies confirm the use of these habitats by:</p> <ul style="list-style-type: none"> • One or more Short-eared Owls or; • At least 10 individuals and two listed spp. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds¹. 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • Large sites (e.g., at least 20 ha) are more significant than smaller sites. • Least disturbed sites may be more significant. • Sites located near other open field areas,



Table 1: Examples of criteria for SWH provided by the SWHTG (Section 8.3 & Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: seasonal concentrations of animals. (For details see Draft Ecoregion Schedule 6E and SWHTG)

Seasonal Concentration Areas	Wildlife Species (Draft Ecoregion Schedule 6E)	CANDIDATE SWH (DRAFT Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
					<ul style="list-style-type: none"> with adjacent woods are more significant. Sites with better habitat (e.g., abundant prey and perches; a tendency toward less snow accumulation due to exposure to strong prevailing winds) are probably more significant. Significant sites may have been used for several years and/or at least 60% of winters.
<p>Reptile Hibernaculum</p> <p>Rationale; Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.</p>	<p>Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake</p> <p>Special Concern: Milksnake Eastern Ribbonsnake</p> <p>Lizard: <u>Special Concern</u> (Southern Shield population): Five-lined Skink</p>	<p>For all snakes, habitat may be found in any ecosite in central Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats.</p> <p>Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifying candidate SWH.</p> <p>For Five-lined Skink, ELC</p>	<p>For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.</p> <p>Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures</p>	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. Congregations of a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). <u>Note:</u> If there are Special Concern Species present, then site is SWH 	<ul style="list-style-type: none"> All sites of locally rare or uncommon species should be considered significant representative hibernacula for common species should be protected Most significant sites support two or more species of concern; significant sites may support one species. Sites with the greatest number of species are more significant. Sites with the highest number of individuals are more significant. the least disturbed and most diverse habitats are likely more significant



Table 1: Examples of criteria for SWH provided by the SWHTG (Section 8.3 & Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: seasonal concentrations of animals. (For details see Draft Ecoregion Schedule 6E and SWHTG)

Seasonal Concentration Areas	Wildlife Species (Draft Ecoregion Schedule 6E)	CANDIDATE SWH (DRAFT Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
		Community Series of FOD and FOM and Ecosites: FOC1 FOC3			
Bullfrog Concentration Areas	Please see table 3 in this appendix: specialized habitat for wildlife		•		
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) Rationale; Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Bank Swallow Cliff Swallow Northern Rough-winged Swallow	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles (Bank Swallow and N. Rough-winged Swallow). Cliff faces, bridge abutments, silos, barns (Cliff Swallows). Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	<ul style="list-style-type: none"> Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. Does not include a licensed/permitted Mineral Aggregate Operation. 	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50¹ bank swallow and rough-winged swallow pairs during the breeding season. 	<ul style="list-style-type: none"> Sites that have been used the longest are important; The number of nests is important; Sites that support provincially rare species are more important than those that support regionally rare species Suggested number of nests that should be considered significant: Cliff Swallow, 8; Bank Swallow, 100; Northern Rough-winged Swallow, 10
Migratory Butterfly Stopover Areas Rationale: Butterfly	Painted Lady White Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. <ul style="list-style-type: none"> The habitat is typically a 	<p>Studies confirm:</p> <ul style="list-style-type: none"> The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, 	<ul style="list-style-type: none"> Large sites are usually the most significant because they contain the greatest diversity of plant species Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few



Table 1: Examples of criteria for SWH provided by the SWHTG (Section 8.3 & Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: seasonal concentrations of animals. (For details see Draft Ecoregion Schedule 6E and SWHTG)

Seasonal Concentration Areas	Wildlife Species (Draft Ecoregion Schedule 6E)	CANDIDATE SWH (DRAFT Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.		<p>land class:</p> <p>Field: CUM CUT CUS</p> <p>Forest: FOC FOD FOM CUP</p> <p>Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.</p>	<p>combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south</p> <ul style="list-style-type: none"> The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes 	<p>multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day; significant variation can occur between years and multiple years of sampling should occur.</p> <ul style="list-style-type: none"> MUD of >5000 or >3000 with the presence of Painted Ladies or White Admirals is to be considered significant.¹ 	<p>in the area.</p> <ul style="list-style-type: none"> Most significant sites support two or more species of concern; significant sites may support one species. Sites with the greatest number of species are more significant. Sites with the highest number of individuals are more significant. Large sites are more significant than smaller sites. Sites with a variety of habitat types (e.g., forest, grassland) are often more significant than sites with homogeneous habitat. Sites within 5 km of Lake Ontario and Lake Erie shoreline are most significant. Least disturbed sites may be more significant. Sites that have been traditionally used for at least 10 years are more significant.



Table 2. Examples of criteria for SWH provided by the SWHTG (Section 8.3 and Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: Rare Vegetation Communities. (For detail see Draft Ecoregion Schedule 6E and SWHTG)					
Rare Vegetation Community	CANDIDATE SWH (Ecoregion Schedule 6E)			CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
	ELC Ecosite Code	Habitat Description	Detailed Information	Defining Criteria	
<p>Sand Barren</p> <p>Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry</p>	<p>ELC Ecosites: SBO1 SBS1 SBT1</p> <p>Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.</p>	<p>Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.</p>	<p>Any sand barren area, no minimum size.</p>	<ul style="list-style-type: none"> Confirm any ELC Vegetation Type for Sand Barrens Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)¹. 	<ul style="list-style-type: none"> All provincially rare vegetation communities (S1 to S3 as listed by NHIC) should be considered significant
<p>Savannah</p> <p>Rationale: Savannahs are extremely rare habitats in Ontario.</p>	<p>TPS1 TPS2 TPW1 TPW2 CUS2</p>	<p>A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.</p>	<p>No minimum size to site Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.</p>	<p>Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used.</p> <ul style="list-style-type: none"> Area of the ELC Ecosite is the SWH. Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). 	<ul style="list-style-type: none"> All provincially rare vegetation communities (S1 to S3 as listed by NHIC) should be considered significant
<p>Tallgrass Prairie</p> <p>Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.</p>	<p>TPO1 TPO2</p>	<p>A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.</p>	<p>No minimum size to site ¹. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.</p>	<p>Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present Note: Prairie plant spp. list from Ecoregion 6E should be used</p> <ul style="list-style-type: none"> Area of the ELC Ecosite is the SWH. Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). 	<ul style="list-style-type: none"> All provincially rare vegetation communities (S1 to S3 as listed by NHIC) should be considered significant
Other Rare Vegetation	Provincially Rare S1, S2	Rare Vegetation Communities	ELC Ecosite codes that	Field studies should confirm if an ELC	<ul style="list-style-type: none"> All provincially rare vegetation



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Rare Vegetation Community	CANDIDATE SWH (Ecoregion Schedule 6E)			CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
	ELC Ecosite Code	Habitat Description	Detailed Information	Defining Criteria	
<p>Communities</p> <p>Rationale: Plant communities that often contain rare species which depend on the habitat for survival.</p>	<p>and S3 vegetation communities are listed in Appendix M of the SWHTG . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.</p>	<p>may include beaches, fens, forest, marsh, barrens, dunes and swamps.</p>	<p>have the potential to be a rare ELC Vegetation Type as outlined in appendix M</p> <p>The OMNR/NHIC will have up to date listing for rare vegetation communities.</p>	<p>Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG.</p> <ul style="list-style-type: none"> Area of the ELC Vegetation Type polygon is the SWH. 	<p>communities (S1 to S3 as listed by NHIC) should be considered significant</p> <ul style="list-style-type: none"> Communities that represent < 3% of remaining natural area and/or are found in only five or fewer locations within the municipality might be considered locally significant communities.



Table 3. Examples of criteria for SWH provided by the SWHTG (Section 8.3 and Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: Specialized Habitat for Wildlife.
For detail, mitigation and protection measures etc., see Draft Ecoregion Schedule 6E and SWHTG)

Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
<p>Waterfowl Nesting Area</p> <p>Rationale; Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.</p>	<p>American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard</p>	<p>All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4</p> <p>Note: includes adjacency to Provincially Significant Wetlands</p>	<p>A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur.</p> <ul style="list-style-type: none"> Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. 	<p>Studies confirmed:</p> <ul style="list-style-type: none"> Presence of 3 or more nesting pairs for listed species excluding Mallards, or; Presence of 10 or more nesting pairs for listed species including Mallards. Any active nesting site of an American Black Duck is considered significant. Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" 	<ul style="list-style-type: none"> This category falls under Habitat of Seasonal Concentrations of Animals in the SWHTG Most significant sites are the only known sites in the planning area; significant sites may be one of only a few in the area. Most significant sites support several species of concern; significant sites support one species. Sites with the greatest number of species are more significant. Sites with nesting and brood habitat for American Black Ducks should be considered significant All nesting areas for Gadwall, Green-winged Teal, Northern Pintail, Northern Shoveler, and American Wigeon should be considered significant Sites with the highest number of individuals are more significant. Larger sites of suitable habitat (e.g., grasslands adjacent to wetlands, ponds, lakes for many species) are more significant. Most significant sites have better habitat (e.g., optimal vegetation structure, stable water levels, abundant cover, and a wetland/water body within 150 m). Sites providing safe movement of broods from nest to wetland/water body (i.e., no roads) are more significant. Sites with lower rates of nest predation are more significant. Sites with little disturbance (e.g., haying, cattle grazing) are more significant.
<p>Turtle Nesting Areas</p> <p>Rationale; These habitats are rare and when identified will often be the only breeding site for local populations of turtles.</p>	<p>Midland Painted Turtle Special Concern Species Northern Map Turtle Snapping Turtle</p>	<p>Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAM2 MAM3 MAM4 MAM5 MAM6 MAM1 MAM2 MAM3 SAS1</p>	<ul style="list-style-type: none"> Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, racoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and 	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of 5 or more nesting Midland Painted Turtles¹ One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH Travel routes from wetland to 	<ul style="list-style-type: none"> Larger sites are most significant because fewer nests are likely to be lost to predation and larger areas are more likely to be important to larger numbers of turtles. Nesting areas adjacent to permanent water bodies and large wetlands, and removed from roads are more significant because of increased likelihood of nesting success and hatchlings reaching the water; as well as reduced road mortality. Higher, well-drained sites are more important than poorly drained, low-lying areas at risk of inundation by water. Sites with good exposure to sunlight are more significant. Generally nesting areas of preferred substrate (e.g., sands and gravels) are preferred to sites over other substrates. Presence of several nests or adult females observed during the nesting season, within a single area indicates a significant habitat. Sites with evidence of use by several species are more significant. Sites with traditional use are more significant.



Table 3. Examples of criteria for SWH provided by the SWHTG (Section 8.3 and Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: Specialized Habitat for Wildlife.
For detail, mitigation and protection measures etc., see Draft Ecoregion Schedule 6E and SWHTG)

Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
		SAM1 SAF1 BOO1 FEO1	<p>shoulders are not SWH.</p> <ul style="list-style-type: none"> Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. 	<p>nesting area are to be considered within the SWH.</p>	<ul style="list-style-type: none"> Nesting habitats used by rare species are more significant. More significant sites are less prone to nest predation (e.g., they are not located in highly active wildlife corridors). Most significant nesting habitats are connected to other turtle habitats (e.g., wetland) by corridors permitting relatively safe movement of these reptiles.
<p>Amphibian Breeding Habitat (Woodland).</p> <p>Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations</p>	<p>Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog</p>	<p>All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD</p> <p>Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians</p>	<ul style="list-style-type: none"> Presence of a wetland, lake, or pond within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat 	<p>Studies confirm;</p> <ul style="list-style-type: none"> Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses). 	<ul style="list-style-type: none"> Greatest significance is ascribed to ponds that support a high diversity of species, species of conservation concern, and high numbers of amphibians; but there is little discussion of ponds that support woodland amphibian breeding that are located outside woodlands Ponds supporting high species diversity are more significant. Ponds supporting rare amphibian species are more significant than ponds supporting only common species. Ponds with a good diversity of emergent and submergent aquatic vegetation are most significant. Presence of shrubs and logs increase significance of pond for some amphibian species because of increased structure for calling, foraging, and escape and concealment from predators. More significant areas will have closed canopy forest providing shaded, moist understorey and abundance of downed woody debris for cover habitat. Breeding ponds with shortest distance to forest habitat are more significant because of reduced risk to moving amphibians and are more likely to be used. Prefer unpolluted waters. <p><input type="checkbox"/></p>
<p>Amphibian Breeding Habitat (Wetlands)</p> <p>Rationale; Wetlands supporting breeding for these amphibian species are</p>	<p>Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog</p>	<p>ELC Community Classes SW, MA, FE, BO, OA and SA.</p>	<ul style="list-style-type: none"> Wetlands and pools (including vernal pools) >500m² (about 25m diameter) isolated from woodlands (>120m), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNR mapping 	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of breeding population of 1 or more of the listed salamander species or 3 or more of the listed frog or toad species and with at least 20 breeding individuals (adults, juveniles, eggs/larval masses) or; Wetland with confirmed 	<ul style="list-style-type: none"> The SWHTG included only Bullfrog concentration areas, which are discussed under Habitat for Seasonal Concentrations of Animals in areas where bullfrogs have declined and there is potential for population recovery, even small concentrations of bullfrogs may be significant. Sites supporting low densities of bullfrogs may be significant if they are near the limits of the species' range Sites that have supported bullfrogs for at least 10 years are significant



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Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
extremely important and fairly rare within Central Ontario landscapes.	Green Frog Mink Frog Bullfrog		and could be important amphibian breeding habitats. <ul style="list-style-type: none"> Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation. 	breeding Bullfrogs are significant.	
Open Country Bird Breeding Habitat (noted under Species of Conservation Concern in Ecoregion Schedules) Rationale; This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	Field Studies confirm: <ul style="list-style-type: none"> Presence of nesting or breeding of 2 or more of the listed species. A field with 1 or more breeding Short-eared Owls is to be considered SWH. 	<ul style="list-style-type: none"> Sites supporting area-sensitive species of birds that are rare or uncommon, and/or exhibiting population declines provincially are most significant. Largest grasslands in the municipality are likely most significant with those >30 ha most likely to support and sustain diversity of these species. Grasslands with a variety of different layers of vegetation at different heights likely provide more habitats and support more bird species and are consequently more significant. Roadless, relatively undisturbed sites with no history of disturbance from grazing, forestry operations during the last 20 years are most significant. In general, early successional grasslands that are not being used for agricultural production are more significant than similar grasslands that are used for agriculture (e.g., crops, cattle grazing). Sites with the least amount of adjacent residential development are more significant. Sites that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant. Specialized habitats with the poorest current representation within the planning area are significant. Sites providing several identified significant wildlife habitats (e.g., raptor nest sites, rare vegetation community, habitat for species of conservation concern) are most significant.
Shrub/Early	Indicator Spp:	CUT1	Large field areas succeeding	Field Studies confirm:	<ul style="list-style-type: none"> shrub-nesting, area-sensitive species not noted in SWHTG but they were



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Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
<p>Successional Bird Breeding Habitat (noted under Species of Conservation Concern in Ecoregion Schedules)</p> <p>Rationale; This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records</p>	<p>Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher</p> <p>Special Concern: Yellow-breasted Chat Golden-winged Warbler</p>	<p>CUT2 CUS1 CUS2 CUW1 CUW2</p> <p>Patches of shrub ecosites can be complexed into a larger habitat for some bird species</p>	<p>to shrub and thicket habitats >10ha in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years).</p> <p>Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species.</p> <p>Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.</p> <ul style="list-style-type: none"> 	<ul style="list-style-type: none"> • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. 	<p>not specifically ruled out as criteria for SWH</p> <ul style="list-style-type: none"> • Sites supporting area-sensitive species of birds that are rare or uncommon, and/or exhibiting population declines provincially are most significant.
<p>Bald Eagle and Osprey Nesting, Foraging and Perching Habitat</p> <p>Rationale; Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing</p>	<p>Osprey Special Concern Bald Eagle</p>	<p>ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands</p>	<p>Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water.</p> <p>Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.</p> <p>Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms).</p>	<p>Studies confirm the use of these nests by:</p> <ul style="list-style-type: none"> • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with 	<ul style="list-style-type: none"> • Most significant nesting habitats are adjacent or close to relatively clear and shallow (< 1 m) water bodies with productive fish populations. • Presence of large, sturdy trees near shoreline • Most significant nesting habitats have numerous large conifer and/or deciduous trees in good condition along the shoreline providing birds with good visibility and clear flight line to the nest. • More significant sites will have no disturbance from human activities within 200 m of the nest during the nesting season. • Some Ospreys may tolerate some disturbance but more significant sites and sites of more sensitive birds should not be disturbed after onset of nesting. • Most significant habitat contains several nests within a single area (e.g., within 1 square km) • Sites with current evidence of use are most significant. • Sites with traditional use are most significant (many nests are used for several consecutive years).



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Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
shoreline development pressures and scarcity of habitat. Possible occurrences have been noted in the Maple ANSI area and additional functions (e.g. foraging habitat) should be considered if development is proposed adjacent to this part of the NHN.				<p>large trees within this area is important.</p> <ul style="list-style-type: none"> For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependant on site lines from the nest to the development and inclusion of perching and foraging habitat To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. 	<ul style="list-style-type: none"> Potential nesting habitats that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are significant. Sites threatened with degradation or loss are more significant than similar, but currently unthreatened sites.
<p>Woodland Area-Sensitive Bird Breeding Habitat (Classified as Habitat for Species of Conservation Concern in Draft Ecoregion Schedules)</p> <p>Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.</p>	<p>Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren</p> <p>Special Concern: Cerulean Warbler Canada Warbler</p>	<p>All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD</p>	<p>Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.</p> <p>Interior forest habitat is at least 200 m from forest edge habitat.</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. 	<ul style="list-style-type: none"> Sites supporting area-sensitive species of birds that are rare or uncommon, and/or exhibiting population declines provincially are most significant. Largest natural forest stands in the municipality are likely most significant with those >30 ha being most likely to support and sustain a diversity of these birds. Most significant forest stands should contain at least 10 ha of forest interior excluding at least a 200m buffer around the forest interior. Smaller interior habitats may still be significant where no larger examples exist. Sites with an abundance of large (e.g., >40 cm DBH, >25 m tall), mature trees are more significant for certain nesting raptor species as well a number of songbird species. Forests and grasslands with a variety of different layers of vegetation at different heights likely provide more habitats and support more bird species and are consequently more significant. Uneven-aged forests are generally more significant than even-aged forests because they provide more forest structure. Sites with largest contiguous canopy cover and fewest gaps in the canopy are likely most significant. Natural gaps (e.g., windthrown trees, woodland ponds) are preferred to man-made gaps (e.g., roads). Gaps should be < 20 m including roads and rights-of-way.



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Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
Though these areas would almost certainly be incorporated into the NHN, additional function should be considered if development is proposed adjacent to this part of the NHN.					<ul style="list-style-type: none"> • Roadless, relatively undisturbed sites with no history of disturbance from grazing, forestry operations during the last 20 years are most significant. • Sites with history of only light grazing and/or forestry operations over the last 20 years are potentially significant if properly managed. • Uneven-aged forest stands are often more significant than even-aged forest stands because they may be less intensively managed, and generally contain a natural representation of species. • Forest stands with a history of little or no forest management may be most significant. • Sites with the least amount of adjacent residential development are more significant. • Sites that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant. • Specialized habitats with the poorest current representation within the planning area are significant. • Sites providing several identified significant wildlife habitats (e.g., raptor nest sites, rare vegetation community, habitat for species of conservation concern) are most significant.
<p>Special Concern and Rare Wildlife Species</p> <p>Rationale: These species are quite rare or have experienced significant population declines in Ontario.</p>	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	<p>Studies Confirm:</p> <ul style="list-style-type: none"> • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • Habitat form and function needs to be assessed from the assessment of vegetation types and an area of significant habitat that protects the rare or special concern species identified. 	<ul style="list-style-type: none"> • called habitat for species of conservation concern in the SWHTG • habitats that support large populations of a species of concern (in the broad sense) should be considered significant • Habitats of the rarest species are more significant than those of less rare species. For example, habitats for species ranked S1 and S2 should be considered more significant than habitats for species ranked S3. • Species ranked as vulnerable by the OMNR should also be considered significant. • Less rare species and their habitats in the planning area may be deemed species of conservation concern by the municipality based on such factors as the number of known occurrences, total extent of remaining habitat, degree of threat or risk to habitat, and/or local interest in a particular species. • The habitat for species experiencing the greatest declines is most significant. • The habitat for declining species that has the lowest representation in the planning area is more significant. • Those habitats that provide the best opportunity for the long-term sustainability of the declining species are most significant (e.g., large well-protected sites; sites that best meet the species' habitat requirements; sites with good connections to other similar habitats). • Habitat for those species with the poorest representation within the



Table 3. Examples of criteria for SWH provided by the SWHTG (Section 8.3 and Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: Specialized Habitat for Wildlife.
For detail, mitigation and protection measures etc., see Draft Ecoregion Schedule 6E and SWHTG)

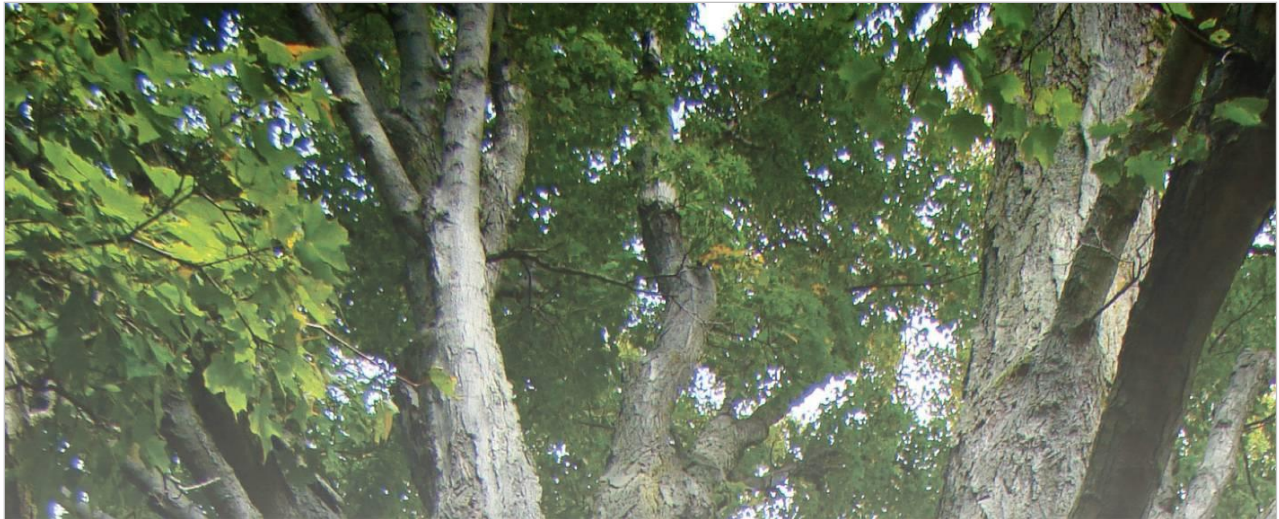
Specialized Wildlife Habitat	Wildlife (Ecoregion 6E)	Species Schedule	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
			ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
						<ul style="list-style-type: none"> • planning area is more significant. • These species and their habitats are significant even if well represented in the planning area, due to high provincial responsibility for their protection. • Those habitats that provide the best opportunities for the long-term sustainability of the target species are most significant (e.g., large well protected sites; sites that best meet the species' habitat requirements; sites with good connections to other similar habitats). • Sites that provide habitat that best meets the survival requirements of the target species and that also include a natural buffer zone are most significant (i.e. most likely to sustain species/population over the long term). • Sites that contain the fewest non-native species of potential threat to the target species are significant. • Undisturbed or least-disturbed habitats (e.g., no/few deleterious impacts from roads, human activities) are significant. • Sites capable of producing a large number of individuals of a single species of conservation concern are significant. • Highly diverse sites that support one or more species of conservation concern are most significant. • Habitats supporting large populations of a several species of conservation concern are most significant. • Habitat supporting large populations of a single species is significant. • Large sites supporting large populations of several species of conservation concern are most significant. • Large sites are generally more significant than most comparable but smaller sites. • Sites large enough to ensure long-term support and viability of species of conservation concern are significant. • Sites with large areas of suitable habitat that are also connected to other potentially suitable habitat and/or natural areas are most significant. • Habitats that provide the best opportunity for long-term protection are usually more significant than similar habitats with little opportunity for protection or facing an uncertain future due to potential threats (e.g., habitat found in a large natural area vs. an isolated site close to an expanding residential development). • Habitats threatened with degradation or loss are more significant than similar, but currently unthreatened habitats, if they can be protected. • Habitats of species currently experiencing severe population declines in Ontario (e.g., grassland bird species) due to habitat loss are most



Table 3. Examples of criteria for SWH provided by the SWHTG (Section 8.3 and Appendix Q) and Draft Ecoregion Schedule 6E (OMNR 2012) for evaluation of SWH: Specialized Habitat for Wildlife.
For detail, mitigation and protection measures etc., see Draft Ecoregion Schedule 6E and SWHTG)

Specialized Wildlife Habitat	Wildlife Species (Ecoregion Schedule 6E)	CANDIDATE SWH (Ecoregion Schedule 6E)		CONFIRMED SWH (Ecoregion Schedule 6E)	SWH (SWHTG)
		ELC Ecosite Codes	Habitat Criteria	Defining Criteria	Defining Criteria
					<p>significant.</p> <ul style="list-style-type: none"> Habitats of species currently experiencing significant population declines in the municipality are significant. Poorly represented habitats for species of conservation concern are significant. Habitats that could be lost or severely degraded and cannot be replaced by similar habitats in the planning area, are highly significant. Sites with documented traditional use by species are most significant. Species of particular interest to the planning authority (e.g., the CAC may recommend certain species such as indicator species) may be considered significant Sites providing the best examples of habitat that will ensure the longterm sustainability of the species are significant.
<p>Seeps and Springs</p> <p>Rationale; Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams. Although these features are likely within the NHN, a feature-based water balance approach may be required to maintain these functions.</p>	<p>Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.</p>	<p>Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.</p>	<p>Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species</p>	<p>Field Studies confirm:</p> <ul style="list-style-type: none"> Presence of a site with 2 or more seeps/springs should be considered SWH. The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat 	<ul style="list-style-type: none"> Sites with several seeps/springs (e.g., >5) are most significant. Most significant seeps/springs are present even during very dry summers. Most significant sites support diversity of native vegetation. Sites supporting rare or uncommon species (e.g., plants, salamanders), or species that are unique to the area (e.g., Wild Turkey) are more significant than those that support only common species. Seeps/springs located on south-facing slopes are probably more significant than seeps with other aspects because of their winter value to some wildlife species. Seeps/springs in forest stands and/or headwater areas are generally more significant than those found in other areas. Seeps/spring found in relatively undisturbed areas are generally more significant than those found in areas disturbed by human activities (e.g., off-road vehicle travel).





Conservation
Land
Securement
Strategy

2014

This report was produced by Orland Conservation for the City of Vaughan.

For over 10 years, Orland Conservation has been dedicated to creating legacies of conservation and sustainability. Based in Guelph, Ontario, we provide environmental project services and land conservation expertise to promote ecological health in urban and rural communities. Specializing in land conservation, Orland Conservation has extensive experience in development and implementation of conservation land securement initiatives. Working with municipalities, conservation authorities, land trusts and landowners across Ontario, Orland Conservation has assisted with the protection of nearly 5,000 acres of environmentally significant land.

For further information visit:
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CONTENTS

1) INTRODUCTION	6
2) CONSERVATION LAND SECUREMENT.....	6
3) LAND SECUREMENT METHODS	8
Land Securement Tools	10
Gratuitous Dedication.....	10
Fee Simple (Donation or Purchase)	10
Partial Taking/Direct Conveyance.....	10
Bequests	11
Life Interest Agreement/Lease Back Arrangement	11
Split Receipt	11
Trade Lands.....	11
Exchanges	12
Transfers	12
Option to Purchase and Right of First Refusal	12
Conservation Easement Agreements	13
4) MAKING CONSERVATION LAND SECUREMENT SUCCESSFUL.....	14
a) City of Vaughan Conservation Land Securement Partners	14
Federal Government.....	14
Provincial Government	15
Upper Tier Municipal Government.....	15
Land Trusts and Non-Government Organizations	15
b) Existing Secured Land.....	18
City of Vaughan Lands	19
Toronto and Region Conservation Authority (TRCA)	19
Nature Conservancy of Canada (NCC)	19
Ontario Heritage Trust (OHT)	19
Ontario Farmland Trust (OFT).....	20
c) Conservation Land Securement Funding	20
York Region	20
Land Sale Funding	20
Ecological Gifts Program.....	20
Species at Risk Funds	21
Project Campaigns	21
5) CONSERVATION LAND SECUREMENT IN VAUGHAN: BUILDING THE CONTEXT	21
a) Conservation Land Securement within Natural Heritage Network Project	21
b) The City of Vaughan Planning in a Conservation Land Securement Context	22
Planning and Guiding Studies	22
c) The City of Vaughan Natural Heritage in a Conservation Land Securement Context	23
d) Vaughan Conservation Land Securement Challenges.....	24
Urbanizing Environment	25
Conflicting Land Uses.....	26
Lack of Strategic Parkland Acquisition Strategy	27
Fundraising	27
Determining the Appropriate Conservation Landowner	27
e) Vaughan Conservation Land Securement Advantages	27
NHN and other Complementary Strategies.....	27
Existing Protection.....	28
Public Ownership.....	28
Ecological Gems	28
Partner Buy-in.....	28

Existing Stewardship Programs.....	28
Strategic Land Acquisition	30
f) Vaughan Conservation Land Securement Risks	30
Liability.....	30
Maintenance.....	30
Illegal Use.....	30
Reduction in Property Tax Revenue	30
Management Plans & Signage	31
g) Vaughan Conservation Land Securement Rewards	31
6) CREATING FOCUS FOR LAND SECUREMENT IN VAUGHAN	31
a) Developing Criteria.....	32
Conservation Land Securement Objectives of the City & Other Partners	32
How Much Land?	34
b) Exceptions	34
c) Developing Conservation Land Securement Criteria	34
Criteria 1 – Natural Heritage Related	35
Criteria 2 – Areas with Stakeholder Buy-in	35
Criteria 3 – Areas with Funding Opportunities & Partnerships	35
Criteria 4 – Areas with High Development Pressure & Urgency of Securement	35
Criteria 5 – Areas with Reasonably-Priced Land	36
Criteria 6 – Secured Land as Nodes & Efficiencies of Scale	36
7) LANDOWNER CONTACT	36
a) Developing a Landowner Contact List.....	38
b) Mailing	38
c) Telephone Contact	38
d) Drop-Ins.....	39
e) Scheduled Site Visits	39
f) Landowner Leads	39
g) Timelines & Expectations	39
h) Other Items of Discussion	40
8) PROTECTING LAND THROUGH OTHER MEANS	40
a) Development Controls through the Planning Process	41
9) COMPLETING LAND SECUREMENT PROJECTS.....	41
a) Prioritizing Multiple Projects.....	42
b) Disposition Policy	43
c) Due Diligence Considerations	44
d) Appraisals	44
e) Legal	45
f) Survey.....	45
g) Baseline Documentation Report (for Conservation Agreements)	45
h) Financing a Conservation Land Securement Program	45
i) Loans & Mortgages	47
j) Stewardship & Endowment Funds	47
k) Land Administration – Carrying Charges.....	47
l) Conservation Stewardship – Managing Sites based on City Mission	47
m) Enforcement or Legal Defense Funds	48
10) COMMUNICATING SUCCESS.....	49
11) CONCLUSION.....	49

City of Vaughan
Conservation Land Securement Strategy
Public Consultation Document for Review

1) INTRODUCTION

Located in York Region in Central Ontario's Greater Toronto Area, the City of Vaughan ("the City") is one of the fastest-growing municipalities in Canada. Formerly described as "The City Above Toronto," Vaughan is a multicultural city made up of the growing communities of Concord, Kleinburg, Maple, Thornhill and Woodbridge covering an area of 27,352 hectares with over 313,490 residents (City of Vaughan, 2013). It is the fifth-largest city in the Greater Toronto Area, and the 17th largest city in Canada.

Vaughan residents have inherited a rich natural legacy that includes diverse ecosystems, flora and fauna, and areas of spectacular beauty. Parts of Vaughan are located within the Oak Ridges Moraine and Ontario's Greenbelt, the landscape is also characterized by the upper portions of the Humber and Don River watersheds and the sub-watershed of Black Creek, a tributary of the Humber River that is also the site of Black Creek Pioneer Village, an open-air historic museum. Among the City's key natural areas are the 237-acre Boyd Conservation Area located along the Humber River Valley and the 800-acre Kortright Centre for Conservation, both owned and operated by Toronto and Region Conservation Authority (TRCA). The City also features a number of significant valley systems, the largest formed by the Humber and East Humber Rivers in the western portions of the City, and the Don River in the east.

This Conservation Land Securement Strategy ("the Strategy") is a comprehensive land securement planning document, which outlines methods for the creation of an informed and effective land securement initiative for the purposes of long-term natural heritage land protection in Vaughan. The Strategy will be used by Vaughan as a framework for the long-term protection, maintenance and, where possible, improvement of the NHN.

2) CONSERVATION LAND SECUREMENT

In Ontario, conservation-based government policy and legislation combined with land-use regulation have traditionally been relied upon to protect ecologically significant land such as forests, wetlands, grasslands, and valley lands. While generally effective in the short-term, existing legal structures cannot provide for permanent protection of natural areas as policy and regulation will invariably be subject to periodical review and amendment. . In addition, anyone may apply to develop lands intended to be protected by the City's Official Plan (OP) or its policies and the appeal the City's decision to the Ontario Municipal Board (OMB). Defense of a City decision to the OMB can be time consuming and expensive.

As political landscapes change, any policies and regulations in place to conserve natural heritage lands remain unstable and only reliable within short-term conservation planning. This is ultimately not a sustainable methodology for a city-wide conservation vision. Therefore, 'land securement' should be prioritized as the most effective approach to protection and conservation of natural heritage lands in the City. Specifically, the term 'conservation land securement' refers to the legal acquisition of natural areas or natural heritage lands through a range of securement methods to facilitate permanent protection of land 'in perpetuity.' Land securement requires both a willing seller/donor and

buyer/recipient. Once secured, such lands are generally held in public or non-profit ownership with the goal to maintain, and ideally protect, restore, and enhance the natural features and their contribution to a larger ecological system. These lands typically result in the formation of parks, trails, conservation areas and nature reserves. Because the goal of land securement is permanent protection, it differs from 'land procurement,' which is the acquisition of land that may at some point be deemed a 'disposable' asset by the public or non-profit funding partner, or land donor/seller.

There are a range of land securement methods available to the City, its partners and landowners, which can be applied to land conservation projects on a case-by-case basis. The adaptability of land securement approaches can offer win-win solutions that are attractive and beneficial to all parties.

Conservation land securement can be pursued by any organization where conservation focus is primarily on land protection and conservation (i.e., a land trust) or larger conservation issues at a watershed level (i.e., a conservation authority). It can also be integrated as a component of a larger, public benefit mission (i.e., a municipality or provincial government), provided that the government body commits to the long-term protection of such properties. Land securement can also be facilitated on an ad-hoc basis; however, this is not an efficient use of limited resources within an organization as implementation of a conservation land securement strategy can take several years to foster relationships with landowners and coordinate the work necessary to initiate each securement project. Further, considering the diverse range of conservation land securement tools and processes, an experienced staff member or consultant is typically required to oversee implementation of a strategy.

Table 1 below, outlines the basic steps of a conservation land securement project.

Table 1: Basic Outline of a Conservation Land Securement Project

1. Develop a Conservation Land Securement Strategy to Set Direction and Establish Goals
Regional Context
Developing conservation land securement criteria
Identifying the conservation land securement Tools
2. Implementation of Conservation Land Securement Strategy
Contacting the Landowners
Education about securement options tailored to audience
3. Working with Individual Landowners (Not all of these items are covered in this Strategy because they are Implementation Plan document)
Meeting with owner/agent on property to discuss securement options with aerial photo of property to be marked up if necessary
Follow up call to continue discussions, and establish perceived land value and all decision makers in transfer of property (or easement) to the City
If both parties find expectations to be reasonable , revise options (if applicable) and draft budget
Commission appraisal by a third party Accredited Appraiser Canadian Institute (AACI) (in most cases)
If an ecological gift, submit application with Letter of Intent to donate
Agree to value and draft applicable Agreement(s)
If an ecological gift, submit application of appraised value determination
Applications for funding (if applicable)
Commence Phase 1 Environmental Assessment and/or staff environmental site assessment
Retain surveyor (if necessary)
City lawyer to perform title search and close transaction
Communicating success
Managing the new land

3) LAND SECUREMENT METHODS

Land securement tools can be adapted to best suit the needs of the original landowner and the recipient to create win-win scenarios. Each tool has advantages and disadvantages associated with each depending on the specific case and goals of each party. For example fee simple purchase usually requires the most money paid by the recipient (and its partners) to secure the parcel; however, the purchase often requires a less complicated transactional process. Typically, donation and split receipts are favoured as the most preferred tool

Each of the tools mentioned below can be either donated or purchase (or both) unless otherwise stated. See Table 2 for a brief overview on the donation / purchase potential for each tool.

The City should encourage donations of land or property rights (e.g., fee simple or conservation easement agreements). At appraised value, these gifts may qualify as charitable donations under the Federal Income Tax Act through the Ecogifts Program. In pursuing donations of land or property rights, the Region works with municipalities and non-profit organizations as well as other potential funding partners in order to secure environmentally significant and/or sensitive lands.

Several changes by the Canadian Revenue Agency (CRA) have provided more tax incentives to landowners willing to donate ecologically sensitive lands. The 1995 federal budget provided for amendments to the Income Tax Act to increase the 20% limitation in respect of charitable donations to 100% for donations made after February 27, 1995. This increase applied to Canadian municipalities and registered charities designated by the Minister of the Environment with land certified by the Ministry to be important to the preservation of Canada's environmental heritage. In May 2006, an announcement was made that all donations of ecologically sensitive lands through the federal Ecological Gifts Program (Ecogifts) are subject to 0% capital gains tax as opposed to the previous amount of 25%. All lands donated outside of this program are still subject to 50% capital gains. In addition, as part of the Ecogifts Program, all appraisals are reviewed by an expert panel of appraisers, providing assurance to the Region and landowners that the appraisal is accurate and legitimate. The Region is eligible to accept donations through the Ecogifts Program.

TABLE 2: DONATION AND PURCHASE POSSIBILITIES FOR SECUREMENT TOOLS

Securement Tool	Donation or Purchase Preferred Option	Donation Possibility	Purchase Possibility	Split Receipt Possibility
Gratuitous Dedication	Donation	Y	N	N
Fee Simple	Either	Y	Y	Y
Partial Taking / Direct Conveyance	Either	Y	Y	Y
Bequest	Donation	Y	N	N
Life Interest Agreement	Either	Y	Y	N
Trade Lands	N/A	N/A	N/A	N
Exchanges	N/A	N/A	N/A	N
Option to Purchase	Either	Y	Y	N
Conservation Easement	Donation	Y	Y	N

Land Securement Tools

Gratuitous Dedication

In this instance, a developer dedicates land within a development proposal as a condition of approval of the application. This will usually result in a dedication of valley lands already in the floodplain with minimal tablelands. The City is most familiar with this method as it pertains to protecting environmental lands. It is also reactionary because it results from the City’s approval of a development proposal. Strategic land securement proactively makes contact with landowners owning lands of key importance prior to any applications for land subdivision and development, and uses one of the following land securement tools.

Fee Simple (Donation or Purchase)

Fee simple is the transfer of the total interest in a property and is the most effective method of natural area protection. In this scenario, the recipient acquires complete control of management and rights to the property by holding title. Property can be acquired either by purchasing or receiving as a donation.

Partial Taking/Direct Conveyance

This is an acquisition of only part of a property. For example, if a landowner has a residence he/she may be willing to dispose of the majority of the property while retaining the residence and amenity area. The advantage to this method is that usually the part of the property severed for conservation purposes does not include the bulk of the value of the property. For example, a landowner could retain a residential lot and acreage around their residence, and retain the majority of the value of the property. The land severed is then owned and managed by the recipient and the landowner benefits from living adjacent to publicly owned lands, for which they no longer have to manage or be liable for. In addition, if the landowner wants to sell the property in the future, they have a much more manageable property

to sell and will have ultimately increased the number of potential buyers. Further, a landowner may also retain a Life Interest Agreement to use the severed portion (e.g., for hiking) for a specified term. See below for more information on Life Interest Agreements.

In some cases, landowners will want to donate or sell the entire parcel to the recipient. In the case of a sale, the recipient may want to recover some of the purchase price by severing and selling off a portion of the developable property. It is advisable to negotiate a long closing date to have sufficient time to market the developable lot and aim for a simultaneously closing.

As described in Section 3, municipalities and conservation authorities can execute a direct conveyance, while land trusts must apply for a severance to the Committee of Adjustment as per Planning Act requirement.

Bequests

Landowners may elect to provide for a gift of land in their Will – perhaps as a personal or family legacy. The main benefit of arranging a bequest is that there is no cost during the landowner's lifetime. A bequest can be cost effective from a tax perspective against the estate. (Note: Donation only)

Life Interest Agreement/Lease Back Arrangement

When the vendor/donor wishes to retain an interest in the property, they can enter into either a Life Interest Agreement or a Lease Back Arrangement. In either case, the land can be donated, purchased or split-receipted. The value of the retained interest would be determined by a qualified appraiser. The agreement would specify a set term or would continue as long as the vendor resides on the subject property.

Split Receipt

A split receipt can be viewed as either a donation of land (or easement) with cash consideration back to the donor, or a purchase of land with a donation of land value in cash back to the purchaser. Essentially, the vendor agrees to sell the property at less than market value. Through the Ecogifts Program, the donated portion must be a minimum of 20% of the appraised value to qualify for a split receipt. Conversely, the landowner cannot receive more than 80% in cash.

Trade Lands

Trade lands are similar to donations where a landowner wishes to donate or bequeath their property to the municipality; however, in these instances the property does not contain any significant environmental features. Where the Region or a partner is willing to accept such a donation, the property would be sold with the proceeds being directed into land securement of ecologically significant lands or other land conservation areas as directed by the donor.

Exchanges

Landowners who own property within a valley system, flood plain, or environmentally sensitive feature may exchange their parcel with a less environmentally sensitive area, usually within the higher, drier tableland. These arrangements may bring funds, which can be used to acquire additional conservation lands. While these transactions traditionally consist of the exchange of fee simple interests, they can consist of any combination of property interests. Note that land exchanges are not necessarily acre for acre. Any exchange would be based on appraised value as valley lands would not be valued the same as developable tableland.

Transfers

Public landholding agencies such as the Ontario Realty Corporation (ORC), municipalities, conservation organizations or land trusts could decide to transfer environmentally sensitive lands or ask an organization to be a backup holder for their lands if the agency were to cease to exist in the future. These lands could either be fee-simple title or partial interest (e.g., conservation easement agreement). These types of transfers could only occur if the recipient organization is willing to accept the lands, and the lands meet the organization's criteria. The agency looking to transfer title may require the recipient organization to sign a landholding agreement or transfer agreement to ensure that the lands are properly managed in perpetuity. It would be prudent for the recipient of transferred lands, or contingency holder, to only accept the land if the agency transferring can offer complete and accurate files and stewardship funds available as part of the transfer.

Option to Purchase and Right of First Refusal

An 'option to purchase' is a contract that allows the recipient to buy a property at a set price for a stipulated period. It is a written contract by the landowner to sell the property and not withdraw this offer during the identified term. The recipient pays a fee for this option. This mechanism is often used by a conservation group as a means of 'buying time' in an attempt to acquire a specific piece of land – presenting an ideal opportunity to fundraise for the purchase costs. This is an agreement between a landowner and the recipient, or other prospective buyer, which gives the recipient an opportunity to match any third party offer to buy a property. It sets out the conditions of sale and is registered on title. This method is considered an interim measure and can be an effective tool to use when negotiations have been halted (e.g., unacceptable appraised value). It can also afford time for the recipient to purchase a property that already has a conservation easement agreement in cases where the recipient decides they would rather hold title than enter into a conservation easement agreement.

The 'right of first refusal' is another method used to discourage competing potential buyers (e.g., developers). The holder of the first rights has priority and therefore maintains some leverage against other potential buyers. There is a fee associated with this method.

Conservation Easement Agreements

Conservation easement agreements or conservation agreements, are legally binding agreements registered on title whereby the landowner transfers specific rights, such as the ability to create building lots or cut trees, to an easement holder. Depending on how the agreement is composed, the easement holder may have the right and responsibility to monitor the property (thus the term “easement”) and ensure landowner compliance with the terms of the conservation agreement. If no easement is granted under the agreement, the agreement can be simply referred to as a restrictive covenant.

Conservation agreements can be an effective tool for protecting the ecological and cultural values of a property because they utilize restrictive covenants. The purpose is to prevent the destruction or exploitation of a property feature or resource in perpetuity. Property usage rights (e.g., subdivision rights, development rights, and tree cutting rights) can be donated or purchased from the landowner; however, it is more common for conservation easements to be donated. Conservation easements can provide for the protection of a specific feature or value such as a rare species, ecosystem, trail, restoration site or heritage building.

In 1994, the provincial government passed Bill 175 amending the Statutes of Ontario including the Conservation Land Act. This amendment allows landowners to grant easements for the protection and conservation of land. A landowner may grant an easement or enter into a covenant with a ‘conservation body’ (such as the crown, conservation authority, municipality, band, or registered charity), which are registered on title and bind all future landowners. A further amendment to the Conservation Land Act was passed in 2006 called Bill 16, which introduced the following new requirements:

- The owner of the land shall not amend an easement or covenant without the written consent of the Minister of Natural Resources;
- The conservation body cannot release the easement or covenant without the written consent of the Minister of Natural Resources; and
- No person shall commence legal proceedings to amend or release an easement or covenant without giving notice to the Minister.

Further, over the past few years, the land trust community in the United States and Canada has made the ‘improvement of conservation easement programs’ a primary focus. Standards and practices relating to conservation agreements have been at the forefront of training and implementation, especially with regard to drafting, negotiating, budgeting, and preparing required Baseline Documentation Reports (BDRs), and monitoring and defending agreements. Publications on the standards and practices related to conservation agreements include Best Practices and Performance Measures (BPPM) for Conservation Easement Programs (Environment Canada, 2005), Greening Your Title (WCELRF, 2005), and The Conservation Easement Handbook (LTA, 2005). These publications are an excellent resource for any conservation organization to utilize. Knowledge of conservation agreements as a conservation tool is continually evolving. Conservation agreements are complex, expensive to negotiate and manage, and are not always effectively interpreted or acknowledged by future

landowners. Therefore, easement holders need to practice and enforce due diligence and establish a robust conservation agreement program in order to uphold these agreements in perpetuity.

One of the starting points in developing a strong conservation agreement program is to negotiate from a legally robust agreement template.

4) MAKING CONSERVATION LAND SECUREMENT SUCCESSFUL

After outlining the basics of conservation land securement and its tools, it is important to understand what makes conservation land securement successful.

- partners;
- expanding existing secured land; and
- reliable funding sources.

Partners make conservation land securement work because they provide support (financial, technical, human resources, etc.) and opportunities. Using public land as nodes for landowner receptivity, friendliness but also expanding the protection of existing natural features within those existing public lands is efficient for resources spent. While creative solutions can be found, funding and support to complete the conservation land securement project is also important.

a) City of Vaughan Conservation Land Securement Partners

Including securement partners is essential in implementing a Strategy. The City is fortunate to benefit from a number of committed and well-resourced partners working on conservation land securement in the Region. The City recognizes this in the Vaughan Official Plan (2010, p. 49):

Environmental management is a multi-jurisdictional effort. Vaughan must work in consultation with the Toronto and Region Conservation Authority, whose mandate it is to further the conservation and restoration of the Humber and Don watersheds in Vaughan. York Region is also a significant partner as together the City and Region are responsible for various components of environmental management. Finally the Province has a major role to play. Numerous Provincial regulations and requirements are incorporated into the policies of this Plan. Additionally, the Provincial Greenbelt Plan and Oak Ridges Moraine Conservation Plan establish specific policies for large areas of Vaughan.

Federal Government

Before the turn of the century, the federal government partnered with NCC for the Canada Millennium Partnership Program. As part of this program, a country-wide land and conservation easement donation program called Natural Legacy 2000 was created. Soon after the millennium, the program ended. Currently, unless the lands being acquired are of National Significance or contribute to a National Park,

the federal government as a landowner has little involvement; however, it does provide funding to local partners for conservation land securement activities.

Provincial Government

Some properties at a level of provincial status may be candidates for acquisition by Ontario Parks (OP). For example, the NCC has transferred title to several OP reserves in other areas of the province. This has almost always involved leveraged funds rather than full funding. In the reverse scenario, provincial agencies like the Ontario Realty Corporation (ORC) may transfer surplus environmentally sensitive lands to local municipalities like the City.

Historically, the province provided matching funding programs through the Ministry of Natural Resources (MNR), for provincially significant lands. At the time of writing this report, the Greenlands Program has not renewed its funds for acquisition for the last three years; however, MNR staff has yet to declare the program defunct. Funds have been available for land securement related to Species at Risk protection (see section 2c).

The Ontario Heritage Trust (OHT) is the province's lead heritage agency dedicated to identifying, protecting, renewing and promoting Ontario's rich and diverse built, cultural and natural heritage for the benefit of present and future generations. OHT previously received MNR funding under the Natural Spaces Land Acquisition and Stewardship Program to assist with the securement and stewardship of natural heritage lands in the province. All funding has been allocated and program renewal is not anticipated.

Upper Tier Municipal Government

The Regional Municipality of York has administered a land securement program since 1999. The City can be a recipient of up to 50% funding of the Region's securement funding pot for projects that meet the Region's criteria. Strong emphasis influencing weighting of such criteria are centered around enhancing York Greenspaces, connectivity, donation potential, tree coverage and planting opportunities.

Land Trusts and Non-Government Organizations

A number of land trusts and non-government organizations are located in York Region whose primary mandate is to secure natural heritage lands and protect significant ecological features, or farmland. They are as follows:

- Ducks Unlimited Canada
- Nature Conservancy of Canada
- Oak Ridges Moraine Land Trust
- Ontario Farmland Trust
- Ontario Heritage Trust
- Ontario Nature

Based on the current focus of each of these groups and their ability to contribute raised funds or other support, the City's two main securement partners are expected to be:

- Oak Ridges Moraine Land Trust
- Ontario Farmland Trust

See Table 3 for local examples. In the table, partners are organized by their securement focus.

Table 3: City of Vaughan Partners

Partner Name	Main Focus Securement Conservation	Area of Focus	Area of Focus (Content)	Lands in Vaughan	Relevancy to Securement Strategy	General Conservation land securement Goals
Federal Government of Canada	No	Canada	Governance of Canada	Not Known	Ecogifts Program	Natural Areas Conservation Program: partners secure ecologically sensitive lands ; Ecogifts Program
Ontario Heritage Trust	Yes	Province	Cultural and Natural Heritage Preservation	Glassco Park (managed by TRCA)	Natural Heritage Conservation	Helps partners secure ecologically significant natural areas
Ministry of Natural Resources	No	Province	Natural Resource provincial affairs	Maple Nature Reserve now in City ownership	Technical expertise	Interested in protection of provincially significant areas
York Region	No	York Region	Municipal Governance (Greening Strategy and Securement as part)	No Regional Forest in Vaughan	Funding	Secure areas that will increase natural cover percentage.
Toronto and Region Conservation Authority	Yes	Water-shed	Securement; Private and public land stewardship	Boyd, Kortright, Baker's Woods	Technical expertise	Secure ecologically significant natural areas through purchases, donations, conservation agreements
Nature Conservancy of Canada	Yes	Federal (King Township)	Securement; Stewardship of their own lands	MacMillan Nature Reserve	Land Trust; Funding	Secure ecologically significant natural areas through purchases, donations, conservation agreements
Oak Ridges Moraine Land Trust	Yes	Oak Ridges Moraine	Securement; Stewardship of their own lands	Not Known	Land Trust	Secure ecologically significant natural areas in ORM Natural Core, Natural Linkage or valley systems originating on the ORM
Ontario Farmland Trust	Yes	Ontario	Agricultural preservation	None	Land Trust	Protects farmlands and associated agricultural, natural and cultural features primarily through conservation easements

It is important for the City to work with area partners to avoid duplication of effort and to ensure all natural heritage lands are provided with the maximum sustainable protection. As it is very common to have multiple partners involved in the securement of a particular property, it is essential to develop and expand on partnerships with these and other organizations involved in holding title or providing funding for the acquisition of ecologically sensitive and significant lands.

Sometimes additional partners are needed for funding purposes or expertise (e.g., negotiating, leverage) to help secure a property. In some cases, the landowner may prefer the property to be secured by a partner of their choosing. Or a partner group may be a better suited recipient than the original group involved in protection of the property. These circumstances will depend on the unique characteristics of the property, the type of securement method involved, and the requests of the landowner.

Further, any partnership involvement that the City has in the securement of a property within its jurisdiction should be viewed as a securement success. This is also referred to as an 'assist'. An assist can include the involvement of City staff time, resources, technical expertise or funding towards the securement of a particular property. Even if the City does not end up holding title, an interest in title or even managing a particular property, any contribution by the City should be recognized by City Council and staff, and certainly by the securement partner. After all, the end goal is to secure these key properties as is feasible and protect them in perpetuity for the betterment of the City.

b) Existing Secured Land

Secured lands are those held in ownership by a public body or non-profit organization with the purpose of conservation or long term management for natural heritage protection. These lands were established to conserve important watershed resources such as floodplains, valley lands, wetlands, and forest regeneration areas. They also serve as important nodes for future conservation land securement activity, building on existing secured lands that are publicly visible and well known in the area. Conservation land securement activities may also be accepted by the public more easily if they are based around areas already viewed by the public as 'natural' and 'protected' areas.

Table 4: Public or Protected Conservation Land Holdings by Landowner Type

Partner Type	Area (ha)
Municipal Government: City of Vaughan Park Land	517
Municipal Government: City of Vaughan Conservation Land (not including Parks)	607
Upper Tier Municipal Government: York Regional Forest Lands ³	0
Toronto and Region Conservation Authority Lands	1,890
Ontario Heritage Trust (Glassco Park managed by TRCA)	192
Total	3,206
City Total Area	27,435
Percent of Land Mass in Conservation Land	12%

City of Vaughan Lands

The City owns 3,173 hectares of land. Approximately one-third (1,124 hectares) of that land is either in park land, open space, water, woodlot, or valley land. The largest block is the Avondale Lands Park at 66 hectares. The category of lands documented as ‘open space’ by the City includes a variety of parcels from small vista blocks to true conservation lands, such as the Woodland Acres Open Space associated with the Natural Linkage designation of the Oak Ridges Moraine Conservation Plan area.

Toronto and Region Conservation Authority (TRCA)

The Conservation Authority has the responsibility of to ensure the conservation and restoration of Ontario’s natural resources. The TRCA owns the 237-acre Boyd Conservation Area located along the Humber River Valley and the 800-acre Kortright Centre for Conservation along with other properties.

Nature Conservancy of Canada (NCC)

NCC is a national charitable land trust that started in 1962 and has several holdings across Ontario. Current land holdings in the City include the MacMillan Nature Reserve at 49 hectares.

Ontario Heritage Trust (OHT)

OHT has land holdings across Ontario and has been involved in conservation land securement since 1967. OHT manages a portfolio of more than 140 natural heritage properties. Glassco Park managed by TRCA is the only OHT property in the City at this time.

Ontario Farmland Trust (OFT)

OFT is a non-government, non-profit, charitable organization that was established to work with farmers, rural communities and other interested parties to promote the protection of farmland in Ontario. They currently have no land holdings in the City, but are open to partnering on securement of land that is wholly, or in part, farmed.

c) Conservation Land Securement Funding

The following list outlines the City's major potential funding partners as of May 2014. More detail surrounding the financial scope of a conservation land securement project is discussed later in this Strategy.

York Region

York Region provides land securement funding under the Environmental Land Protection and Preservation Program. As a lower tier municipality within York Region, the City would have access to these funds for projects that meet the Region's criteria.

Land Sale Funding

A donated property, which was not prioritized for land securement, could be sold and the proceeds used to purchase environmentally significant land. Another method could include the City disposing of surplus lands or rental properties by doing a direct conveyance and retaining the conservation lands (or lands that have rehabilitation potential) and disposing of the non-conservation lands. The City would need to evaluate the benefits of this scenario on a case-by-case basis. If current properties are generating on-going positive revenue for the organization with minimal staffing costs, then this approach may not be necessary. In the case of trade lands, properties that do not contain environmental features would typically be sold with the proceeds being directed to the conservation land securement program.

In addition to funding acquired through land sales, there are potential funding partners such as mentioned above. With partner assistance, it is anticipated that the solicitation of donations of money and land can be significantly increased in the City.

Ecological Gifts Program

Ecological gifts (ecogifts) are qualified charitable land donations that generate enhanced income tax benefits. Donations of fee simple title and partial interests, including conservation easements, are eligible. To qualify as 'ecologically sensitive,' land must satisfy at least one criterion from a list of Specific

Categories of Qualified Lands, and one or more from a list of General Criteria for Other Ecologically Sensitive Lands.

Gift recipients include land trusts and other conservation charities, and government agencies chosen by donors and approved by the federal government. Donors of ecogifts receive a donation receipt for the fair market value of the gift. Ecological gifts receive tax treatment that is superior to most other charitable gifts. Ecogift tax advantages include:

- Eliminated taxable capital gain on the disposition of the property
- No income limit for calculating the tax credit/deduction
- Donation value certified by the Government of Canada
- Tax liability for donees that do not protect the gifted land

Species at Risk Funds

Relatively new Species at Risk legislation states that should Species at Risk be identified on a property proposed for development, the developer can choose to provide funds towards the protection and/or restoration of habitat. These funds can be allocated to land securement and stewardship of equal or better habitat than what will be destroyed by their approved development. It is up to the discretion of MNR staff to determine if a prospective property meets that objective.

Project Campaigns

When a potentially popular acquisition can be made, the City, with partner support, can launch a fundraising campaign for the securement of that property. In such a case, a long closing date would be negotiated with the seller to allow sufficient time to fundraise.

5) CONSERVATION LAND SECUREMENT IN VAUGHAN: BUILDING THE CONTEXT

a) Conservation Land Securement within Natural Heritage Network Project

In keeping with the protection and enhancement of the natural environment, the City commissioned a Natural Heritage Network (NHN) study comprising of the following phases:

- Phase 1: GIS analysis of a NHN with ideal ecosystem targets
- Phase 2: Field Investigations and ground truthing of Phase 1
- Phase 3: Providing Recommendations on a NHN
- Phase 4: Land Securement Strategy to identify areas to acquire to protect in perpetuity the natural heritage features identified in Phases 1 – 3.

The effort through the NHN Study has provided a more complete inventory of natural features based on available information and additional field studies. The detailed inventory and criteria defining a network of Core Features and Enhancement Areas (Phase 1-3) provides critical support for the long term protection and management of the NHN as a legacy for future generations (Phase 4).

This Strategy will showcase existing natural features within the NHN in a conservation land securement context, outlines recommended conservation land securement tools, and identifies criteria where conservation land securement should occur to protect the key natural heritage features as identified in the NHN.

b) The City of Vaughan Planning in a Conservation Land Securement Context

Vaughan Vision 2020, the City of Vaughan's Strategic Plan (2011) projects that the City's rising population is expected to increase to 430,000 by 2031. Identifying that "the next 25 years will see Vaughan beginning the transition from a growing suburban municipality to a fully urban space", Vaughan's Strategic Plan developed the following vision to guide this historical period of growth:

A city of choice that promotes diversity, innovation and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible and sustainable

Further, Vaughan's Strategic Plan (2011) outlines a set of Strategic Goals and Themes, which includes the following environment and sustainability statement:

Lead & Promote Environmental Sustainability:

Committed to protecting and enhancing the natural and built environments through the efficient use of resources.

Planning and Guiding Studies

The following reports produced by the City since 2009 provide a foundation of themes and studies that will inform and guide this Strategy:

Vaughan Official Plan (VOP, 2010): The Official Plan details policies on land use within the City of Vaughan's jurisdiction. Within this Plan, the following policies will affect conservation land securement

3.2.3.1. To protect and enhance the Natural Heritage Network, as identified on Schedule 2, by:

- securing new natural and open space linkages for improved connectivity of the Natural Heritage Network through the development approvals process, conservation easements, donations or purchases

Green Directions Vaughan (2009): Green Directions builds upon the existing body of work and strategic directions in Vaughan Vision 2020 to help guide the City towards sustainable decisions and actions.

- Action item 2.2.3: "Continue to develop a Parkland/Open Space Acquisition Strategy." While land acquisition for parkland refers to areas for active and passive recreation, rather than

natural areas, City staff involved in land securement and stewardship activities to improve the NHN should look for opportunities to complement the parkland acquisition efforts.

- Action item 2.2.4: “Develop a comprehensive Natural Heritage Strategy that examines the City’s natural capital and diversity and how best to enhance and connect it.”

Active Together Master Plan (2013): The City of Vaughan lacks a comprehensive strategy to identify parkland acquisition priorities and opportunities. The Active Together Master Plan is helpful in identifying system-wide issues, but a more detailed acquisition strategy is needed in the short-term before opportunities are lost (7.1 j). If/when a parkland acquisition strategy is completed; it will differ from the Conservation Land Securement Strategy as a parkland strategy will include sites for active recreation (such as soccer fields and playgrounds) as well as passive recreation. “Active parkland” is referred to as all lands owned, leased, and/or managed by the City and classified as Regional Parks, District Parks, Neighbourhood Parks, and Parkettes/Public Squares. Active parkland typically consists of tableland suitable for the development or installation of built recreational amenities (such as sports fields, playgrounds, courts, etc.) that may be used for both organized and unorganized activities. “Open space” lands, which have no to low development potential and are primarily designated for purposes such as environmental protection/conservation, stormwater management, buffers, etc. are outside of the scope of the Active Together Master Plan, but can complement a conservation land securement strategy.

TRCA Greenland Acquisition Report (2011): Toronto and Region Conservation Authority (TRCA) has recently completed the Greenland Acquisition Report for 2011 – 2015. It does not specifically identify Vaughan or parts thereof for conservation land acquisition; however, it does identify the criteria in which it would be interested in participating in a greenlands acquisition project. It should be considered a guiding document because TRCA is a leading partner in greenlands acquisition in the GTA.

York Region Greening Strategy (2012): In the same capacity as the TRCA document, the Region’s Greening Strategy (and associated sub-documents) should also be a guiding document as the Region could be a significant funder of land securement activities in Vaughan.

c) The City of Vaughan Natural Heritage in a Conservation Land Securement Context

While the action item in Green Directions Vaughan regarding parkland acquisition includes passive and active recreation areas, the purpose of land securement in association with the NHN study is for natural heritage feature and system protection. The City has significant natural features within their municipal jurisdiction. Vaughan residents have inherited a rich natural legacy that includes diverse ecosystems, flora and fauna, and areas of spectacular beauty. Located on the Oak Ridges Moraine and Ontario’s Greenbelt, approximately 40% of Vaughan can be interpreted to be protected in natural areas and agricultural lands as Green/Open Space: Natural Areas and Countryside. Core Features of the NHN cover

about 20% of Vaughan. Vaughan's landscape is characterized by the upper portions of the Humber and Don River watersheds and the sub-watershed of Black Creek, a tributary of the Humber River that is also the site of Black Creek Pioneer Village, an open-air historic museum.

Among the City's key natural areas are the 237-acre Boyd Conservation Area located along the Humber River Valley and the 800-acre Kortright Centre for Conservation, both owned and operated by TRCA. Agriculture will remain a productive activity in Vaughan through protected agricultural lands (City of Vaughan et al, 2012; City of Vaughan, 2011). The City contains a number of significant valley systems. The largest are formed by the Humber and East Humber Rivers in the western portions of the City, and the Don River in the eastern portion of the City. Many of the City's wetlands are in the headwaters of the Humber and Don Rivers, feeding the small tributaries that in turn feed these large river systems. They also occur along the floodplains of watercourses and in "kettles" once occupied by trapped blocks of glacial ice. The woodlands on table lands are smaller and disconnected, but provide important ecological functions that will be preserved. The variety of available woodland resources influences the range of native biodiversity in the City.

The Oak Ridges Moraine is a landform that crosses a portion of the Greater Golden Horseshoe. The area of the Moraine known as the Maple Spur is located in north eastern Vaughan. It is notable for its unique geological characteristics, its important groundwater recharge and discharge functions, the coldwater streams that originate within it, its high quality and extensive natural areas, and its landform characteristics. The Moraine provides a number of significant vistas and panoramic views to the south of the City. The Moraine includes the Maple Upland and Kettle Wetlands Regionally Significant Life Science ANSI and Oak Ridges Moraine Maple Spur Earth Science ANSI as well as the McGill ESA (City of Vaughan et al, 2012).

d) Vaughan Conservation Land Securement Challenges

Conservation land securement activities, in any area, will have to address challenges and advantages that become apparent on the landscape. It is the responsibility of the Strategy implementers to ensure that disadvantages are either mitigated or removed. Addressing disadvantages is an ongoing aspect of land securement as landowner contact and community consultation continues. Advantages should be used and promoted wherever possible.

Conservation land securement is a long term and often highly individualized process. It requires both a willing seller/donor, an efficient use of tax dollars, the right property and a willing buyer/recipient. Many outside factors can influence the successfulness of a Conservation Land Securement Program/Strategy.

Urbanizing Environment

The historical pattern of growth and current urban structure has created a number of significant issues that the City, and other suburban municipalities must begin to address. These include, among many others: car dependence, traffic congestion and increasing commuting times; low-density, single-use areas that do not allow for the efficient provision of transit; a limited range of housing options; and, a significant loss of agricultural and natural areas (City of Vaughan, 2011).

Like many urbanizing landscapes in Southern Ontario, the City must find a delicate balance between development, infrastructure, the economy, agriculture and the natural environment. As noted above, the Strategy should consider securing existing natural features. Considerations should also be given to potential restoration sites to expand and increase the current natural heritage condition

Table 4: Vaughan's Natural Environment Compared to Ideal Ecosystem Targets

Ideal Ecosystem Target	Vaughan Conditions
30% forest cover	11%
10% wetland	1.9%
75% of streams with forest cover within 3 m of stream banks cover	30 %

This challenge can be viewed as an advantage: By having a low current natural heritage condition, it results in fewer properties to consider for securement of existing features. However, it does give flexibility because determining restoration potential could be very dependent on available land. For example, restoration to connect two existing natural features could be viewed in multiple ways depending on willingness of the landowner (see Figure 1 below).

In fulfilling the City's objective to preserve natural heritage lands, it is important to recognize that the City has been rapidly urbanizing, therefore facing tremendous environmental challenges. With depleting natural areas, there is a greater urgency to secure and restore these remaining lands. To effectively utilize resources to acquire existing natural areas, the City has established data sets (i.e., mapping, databases) which can be used to strategically build the proposed conservation land securement program. Keeping in line with work done by other municipalities, the City's Natural Heritage Network mapping have proven immensely useful in the production of this Strategy as they identify and qualify priority natural areas as well as other ecologically significant lands that demonstrate potential for restoration.

FIGURE 1: POTENTIAL PROPERTY CONNECTIONS BETWEEN 2 EXISTING NATURAL FEATURES



Conflicting Land Uses

Another conservation barrier facing the City is competing priorities between agriculture, urban and conservation land uses. Since the time of European settlement, much of the original natural resources of the City have either been removed or altered as a direct or indirect result of clearing and drainage for timber, agriculture, and urban development¹. The result is a highly fragmented and ‘patchwork’ landscape. Most landowners tend to view their land as a commodity, which contributes, to livelihood. Agriculture is a social and economic necessity. The best approach would be to provide securement options to willing rural non-agricultural landowners and for those not interested in securement to encourage the use of beneficial management practices on farms. Farmers in this area may be more interested in a farm preservation easement, full purchase or split donation/purchase to offset any decrease in income due to loss of land. Alternatively, the rural non-farm landowners may be more willing to consider conservation easements, full donation or split receipt as their livelihood is not tied as directly to the land. Having a wide range of securement tools available for discussion with all landowners would allow the City to accommodate different needs for different landowners.

This challenge can be viewed as an advantage: Different land uses and landowner motivations mean a wide variety of conservation land securement tools can be applied.

Lack of Strategic Parkland Acquisition Strategy

Conservation Land can be classified in a number of different ways: parks, natural areas, conservation reserves, green space, natural hazard lands, etc. Parks implies a user / experience element, which can require specific criteria (including size, access and safety) that differ from a nature reserve or flood plain hazard land. The Conservation Land Securement Strategy does not focus on the acquisition of parks specifically, but instead has a focus on acquiring land that has a conservation value. Some of these lands may be suitable for use as parks but it is not the intent of this Strategy to determine the end use of conservation land.

Fundraising

To date, the City has supported the creation of this Conservation Land Securement Strategy as part of the NHN work. However, no funds have been set aside for acquisition costs keeping in mind that even donations have costs associated with transaction.

However, while the City has no funds, it does have two strong securement partners with potential matching dollars in the Region and the Conservation Authority. The York Region Environmental Land Preservation and Protection program has an annual budget to help partners with conservation land securement projects that meet established criteria. The Conservation Authority may be able to apply to foundations etc that the municipality would not be eligible to submit an application.

Determining the Appropriate Conservation Landowner

What a great challenge to have! Because of the strong and committed conservation partners in the City of Vaughan, determining which organization to take ownership of a property may be a challenge initially. Any involvement by the City on a securement project should be considered a 'win' even if the City does not hold title.

e) Vaughan Conservation Land Securement Advantages

NHN and other Complementary Strategies

The City has already mapped out the key natural heritage network (NHN) data, which includes the key significant existing natural features. Having this mapping is key to the identification of where to focus conservation land securement efforts but also essential to conducting a fast but efficient preliminary analysis using GIS instead of relying solely on ground truthing and field investigation. In addition to the NHN data, the TRCA has terrestrial natural heritage system mapping which can help identify potential restoration areas.

Existing Protection

As 40% of Vaughan is protected as Green/Open Space: Natural Areas and Countryside, environmental feature/land through legislation; It can be effective in the short-term; however changing political will can put once-protected natural areas at risk again. Existing legislation that protects environmental features works in favour of conservation land securement activities as people are more willing to divest of land that can't be developed. Ultimately, it is imperative to acknowledge that the conservation land securement movement does not consider land under existing legislation to be permanently protected.

Public Ownership

It is widely accepted in the conservation community that natural heritage features can be expertly stewarded in a private land ownership scenario. In fact, it is ideal from the City's perspective because it translates into less liability through land management. However, model private land stewards are the exception, not the general rule. Poor private land stewardship often stems from lack of knowledge rather than malicious intent. Therefore, many significant natural heritage features should ideally be stewarded and maintained in perpetuity by a public owner (i.e., The City, TRCA, etc) or a land trust.

The City has 13% of its land in public or secured ownership, which is an excellent starting point in setting the framework for long-term securement and stewardship; however, this should not imply that the City's work is complete and/or that all of the most important natural features are protected. It does also not identify the quality of those holdings and the connectivity of the natural heritage features within them.

Ecological Gems

Among the City's key natural areas are the 237-acre Boyd Conservation Area located along the Humber River Valley and the 800-acre Kortright Centre for Conservation, both owned and operated by Toronto and Region Conservation.

Partner Buy-in

Another asset to conservation land securement within the City is the buy-in from partners who have realized the need to significantly increase the extent and quality of remaining natural habitats as well as the partner recognition of the importance of this area. Such partners can be the City's securement partners, or foundations and other environmental NGO's to drum up support.

Existing Stewardship Programs

Securing lands is the main focus of this Strategy, however long-term stewardship and management of both public and private land holdings is also central to the protection of natural features at a landscape level. Unfortunately, conservation land donation projects usually take years from initial contact to completion. In the interim or while deciding to move forward on a conservation land securement

project, landowners have several land stewardship options offered to them by the Province, TRCA and the City (e.g. tree planting, CLTIP, MFTIP and stream rehabilitation). After making use of such programs, landowners can become more inquisitive and accepting of land securement options to protect their land in perpetuity.

Some of these programs include:

Public Spaces

- (Vaughan) Dazzle Me! Challenge: projects that will enhance and beautify a local public space.
- (Vaughan) Adopt-A-Park Program offers interested and responsible citizens a chance to beautify and enhance their neighbourhood park. three planned park activities which would include; litter cleanup, tree plantings, flower plantings and shrub bed maintenance

Private Spaces:

- (TRCA) Healthy Yards: The Healthy Yards Program provides watershed residents with the inspiration, information and tools required to create naturally beautiful lawns and gardens.
- (TRCA) Rural Clean Water Program - York Region: provides free technical assistance and financial incentive to support the voluntary implementation of environmental and agricultural Beneficial Management Practice (BMP) projects on private land.
- (TRCA) TRCA Forestry Services: prepare and implement a Forest Management & Stewardship Plan for your property, manage your forest plantation to restore a mixed hardwood forest, identify & control invasive species, prepare a Sustainable Harvest Plan for hardwood forests and conifer plantations including Tree Marking by Provincially Certified Tree Markers
- (TRCA) Managed Forest Tax Incentive Program (MFTIP) Planning Services
- (York Region) York Region Backyard Tree Planting Program: offer a full-service subsidized program

The City's Parks & Forestry department is currently looking to introduce the LEAF Backyard Planting Program in Vaughan

These programs offer another way for the City and its partners to establish positive relationships with landowners wanting to employ a good conservation land use ethic on their property and could lead to conservation land securement projects down the road. Completing management plans, either with partner resources or using ready-made resources like Guide to Stewardship Planning for Natural Areas (Ministry of Natural Resources), Rural Landowner Stewardship Guide (Caldwell), and/or the Environmental Farm Plan Program (and/or just the workbook) with private landowners may help cultivate long term relationships and encourage discussions about long-term securement options to *permanently* protect the stewarded features on the property. Other programs to assist landowners to build a long term relationship include programs like the Managed Forest Tax Incentive Plan (MFTIP) or Conservation Land Tax Incentive Plan (CLTIP).

Strategic Land Acquisition

The most important conservation land securement advantage is having a Strategy to set direction and guide implementation of securement activities. Future conservation land securement activities will have this Strategy to provide objective justification and prioritization of activities to the City Council, staff, the public and potential funders.

f) Vaughan Conservation Land Securement Risks

Obtaining new parcels means taking on all of the requirements of being a landowner.

Liability

Taking on new conservation land would include the same type of liability of owning other public land such as parks or recreation lands.

This risk can be mitigated by using the current operating standards for liability as used for existing City owned public spaces

Maintenance

Depending on the nature of the conservation land and its intended use, the maintenance requirements could be minimal. If the new conservation land has significant natural features that are best left without public use, the maintenance could be as little as some periodic mowing and fence repair. If there is a high amount of public use, more maintenance will be required.

This risk can be mitigated by acquiring high public use pieces of land adjacent to other high public use public land parcels to at least increase maintenance efficiencies and reduce drive time between parcels.

Illegal Use

Bush parties, hunting, dumping, poaching, and ATV riding are examples of prohibited uses unless otherwise permitted by the City. Among existing lands secured for natural heritage protection, any of these prohibited activities would likely be incongruent with the ecological sensitivity of the land; thus, should be considered illegal. If there is evidence of such activities on properties to be secured, the City would need to employ methods of discouragement such as signage, erecting barriers and regular monitoring.

Reduction in Property Tax Revenue

Changing ownership from private to public will mean a reduction in annual property taxes. This reduction would be outweighed by the environmental and social benefit of the community. This

reduction can be mitigated by charging user fees or parking fees to high traffic areas are one way to help offset the reduction.

Management Plans & Signage

Deciding the future intentions of the newly acquired conservation land can be a huge time investment, dependent on the size and intended use of the property.

This risk can be mitigated by including the technical and human resources of TRCA as well as providing strategic and efficient use of management resources for the property over the long term.

g) Vaughan Conservation Land Securement Rewards

To the municipality, the rewards for acquiring conservation land are numerous. Studies suggest that access to green space can have mental and physical health well-being benefits to the residents of the City. Having flood plain and/or hazard conservation land in public ownership can help mitigate damage caused to personal property by the occurrence of these naturally occurring processes like flooding. Conservation land can provide critical connecting corridors and linkages to existing trail systems and passive recreation activities

To individual residents, landowners can be surrounded by greenspace without the liability or maintenance. Property values are typically higher when surrounded by a green space. They can see tax benefits of donation and/or cash in hand for fair market value of the green space portion of their property. They can split the green space portion of the property to make a large property more attractive to potential buyers.

6) CREATING FOCUS FOR LAND SECUREMENT IN VAUGHAN

Knowing the context for conservation land securement in the City is important. Equally important is identifying what types of lands will be considered. There are 94,079 parcels within the City of Vaughan. Excluding those that are already secured for conservation purposes, there is no need or funds to acquire every parcel. For this exercise, only parcels greater than 2 acres are considered for securement as parcels smaller may not be cost efficient to pursue. However, the urbanizing landscape in Vaughan makes it necessary to consider this size of parcels; other municipalities with less urbanization can consider a larger threshold because they have larger parcel opportunities.

a) Developing Criteria

Prioritization of land securement within the City's jurisdiction must happen to ensure efficient use of the conservation land securement resources. In developing the Conservation Land Securement Priority Criteria (CLSPC) of the watershed, three key questions to consider include:

- What are the conservation land securement objectives of the City and other partners?
- What types of land does the City want to protect?
- How much land does the City want to protect to meet its goals?

Conservation Land Securement Objectives of the City & Other Partners

In considering CLSPCs, it is important to consider the conservation land securement objectives of not only the City but other conservation partners. Other partners could assist the City in leveraging funds, supporting decisions to Council, technical knowledge, management and stewardship agreements and long term maintenance of acquired properties. The City's objectives would be of foremost importance but the other partners are worth a consideration, especially when prioritizing between CLSPCs.

City of Vaughan

The City of Vaughan would like to secure lands that fall within the Natural Heritage Network (NHN). This NHN includes lands that:

- Enhance areas that are not currently forested, and in many cases these areas will develop forest vegetation over time contributing to the total forest cover of Vaughan
- Increase the amount of interior forest by reducing the edge to interior ratio of forests,
- Connect closely spaced clusters of smaller forest patches, that collectively can provide much larger forest patches with substantial interior forest and, where possible, a large contiguous forest >200 ha in size and/or functionally connect through landscape management
- Include an appropriate wetland buffer
- Link to adjacent upland habitat which collectively can contribute to increased protection of a wetland's function
- Serves a hydrological linkage to Redside Dace habitat and/or importance for downstream flood control
- Includes a buffer around streams which may over time be managed to restore native vegetation to achieve greater cover along streams and within buffer areas adjacent to streams

Ideally, the highest priority lands would be those that meet one or more of the criteria mentioned above.

In addition to considering the NHN data, consideration will also be given to parkland and the parkland acquisition strategy (not yet written). Important to note here that this Conservation Land Securement Strategy and the associated Priority Areas will not be focused on parkland however some land that will

be included may be suitable for park uses and/or may overlap the parkland acquisition strategy once written.

York Region

York Region's Land Securement Criteria are important to consider because of the potential for leveraging funds. As previously noted, the City does not have a conservation land acquisition budget so the potential for leveraging funds for fundraising opportunities and adoption by City Council to support the project is key.

The Region's criteria include:

- Connecting Greenland Core Areas
- North South linkages
- East West Linkages
- Strengthen existing green nodes
- Protecting core natural heritage features and functions and/or
- Forest rehabilitation

Toronto and Region Conservation Authority (TRCA)

The Toronto and Region Conservation Authority has a strong land securement program. They have a guiding document (noted above) that outlines the ecological criteria that they would use to identify conservation land securement opportunities. At the present time, they currently do not have any physical priority areas within the City but would be willing to consider properties that meet their ecological criteria for acquisition on a case-by-case basis. Having TRCA as a partner will not only potentially assist with leveraged funding but also assistance (either technical knowledge and/or actual field work) in the stewardship plan and long term maintenance.

Oak Ridges Moraine Land Trust (ORMLT)

The Oak Ridges Moraine Land Trust would be interested in anything on the Oak Ridges Moraine, preferably in Natural Core and/or Natural Linkage Areas. The ORMLT in the past has predominantly used conservation easements as a method of securement.

Nature Conservancy of Canada (NCC)

While in the past the Nature Conservancy of Canada has typically worked in King Township and Northumberland County, it did partner with the City of Vaughan on the MacMillian Farm as the surrounding lands were donated to the NCC by the MacMillan family and recognized by the City as a nature reserve. The properties would have to have at least provincial importance for this federal organization to participate.

Ducks Unlimited Canada (DUC)

DUC no longer has a proactive acquisition program but if would be interested in a case by case basis if a property had a provincially significant wetland (PSW) accommodating significant waterfowl habitat.

Ontario Farmland Trust (OFT)

The Ontario Farmland Trust works with conservation land on existing active agricultural lands.

How Much Land?

This is not an easy question to answer. What is needed is a secondary priority of what percentage of that natural cover should be within public ownership.

Additional considerations should be considered about taking ownership of additional land. Costs associated with ownership of new lands should be consulted with the Finance, Real Estate and Parks Departments to understand the implications of taking on ownership of new conservation lands.

b) Exceptions

Although this Strategy will guide conservation land securement, there may be individual properties that arise that only meet some of the criteria. These properties could be considered for acquisition by the City on a case-by-case basis as it creates an early success story on which to build momentum for the program.

c) Developing Conservation Land Securement Criteria

Conservation Land Securement Criteria (CLSC) are developed to establish where conservation land securement and related landowner contact activities should occur within the City. It is important to note that landowners who approach the City of Vaughan about land donation should always be considered, regardless of their ranking of criteria. Furthermore, all lands that meet these criteria are not necessarily acquisition priorities. Building envelope placement, access and infrastructure concerns may exempt a property from being considered. Alternatively, some individual properties located outside of priority areas, but which have natural heritage values, may be considered for acquisition if opportunities arise. The CLSC were developed by looking at the Natural Heritage Network (NHN) data. In combination with the NHN data, other factors were considered. See Table 6 for a full breakdown

TABLE 5: CONSERVATION LAND SECUREMENT CRITERIA

Criteria Ref. No.	Land Securement Considerations	Rationale
1	Natural Heritage Network	Determining ecological significant
5	Adjacent to Secured Land	Expand/add to existing secured parcels
5	No Road Access	Parcels with no road access are land locked
5	Parcel Size	Larger parcels are more cost efficient to secure
5	Connecting Public Lands	Expand two parcels of secured land into one parcel

		(where the parcels are only separated by one non secured parcel)
5	Filling in Holes	Rounding out edges provides better habitat features, providing better access to enable recreation/use, filling in missing parcels in middle
1,2	York Region	Selects parcels that will contribute to increasing natural (forest) cover
1,2,3	TRCA	Interested in ecological significant parcels
1,2	Oak Ridges Moraine Land Trust	Interested in ORMCP Natural Core, ORMCP Natural Linkage or any valley originating on ORM
3	York Region	Potential Funder where parcel contributes to increasing natural (forest) cover
2,3	Environment Canada Ecological Gifts Program	Potential Funder ecological significant properties
4	Development	Pressure for development

Criteria 1 – Natural Heritage Related

Natural Heritage criteria should be the most important criteria in a Conservation Land Securement Strategy.

Criteria 2 – Areas with Stakeholder Buy-in

It is much easier to protect land and garner support (both emotionally and financially) from the community where stakeholders (e.g., the landowners, local businesses) are conservation minded and appreciate the need for conserving local ecologically sensitive lands. Those landowners already involved in a stewardship program (e.g., TRCA’s forestry program) may be excellent candidates for this.

Criteria 3 – Areas with Funding Opportunities & Partnerships

There are numerous areas within the City where established funding opportunities and partners exist. It is best to start with these areas in order to achieve faster successes which can then be used to demonstrate that more support is needed in other parts of the watershed which are equally as important in terms of conservation, but may be weaker in terms of funding and partnership opportunities. It is also easier to fundraise when leveraged funds are already committed by partners.

Criteria 4 – Areas with High Development Pressure & Urgency of Securement

The whole municipality has urgency because of urbanization. Sometimes, these areas are already in the hands of speculators and developers as numbered companies; however, other times there are landowners who have been ‘holding out’ because they want to preserve their land and way of life. Once in the hands of a developer and identified for urban development in the Official Plan, most likely the

only way to protect some natural features would be through land dedication or conservation easements as part of the planning process. However, if the lands are still with a conservation minded landowner, there is greater opportunity for securement. In addition, the urgency in protecting these properties adds to the 'call for action' and can sometimes bring an overwhelming response for the community in terms of fundraising support (this is discussed more in section 4).

Criteria 5 – Areas with Reasonably-Priced Land

Again, the principle idea here is to strategically protect as much ecologically sensitive land as possible and priority areas which make it feasible to do so as parcels are often larger in these areas.

Some landowners only want to sell their land, and will not consider donation. The cost of land in some areas and types can significantly less expensive compared to others. The result is that more land ends up being secured, at less cost. It may be strategically beneficial to be able to announce an impressive amount of acreage secured to foster more fundraising. Success excites potential cash donors and breeds more success. From data collected from across the Greater Toronto Area in similar landscapes, conservation land will still be relatively expensive, ranging from approximately \$5,000 - \$500,000/ac. Proximity to Toronto can often see prices on the high side of that range.

Criteria 6 – Secured Land as Nodes & Efficiencies of Scale

As noted before, existing secured conservation land should be included as an important criterion because of the existing infrastructure and recognition of the protection of natural features in the community within a given secured land parcel(s). It is practical to add land to existing secured lands for expanding the protected habitat of the feature, connectivity and stewardship ease.

7) LANDOWNER CONTACT

A primary goal of the Conservation Land Securement program is to educate landowners with significant landholdings in the City about the various long-term conservation options that are available to them. Most landowners only know about two options when it comes to disposition of their land:

- Sell it; or
- Leave it to family

Deciding to protect one's property for the long-term is a big decision that can take a landowner several years to make. Even if a landowner doesn't express interest in the various conservation options available to them at this time, the landowner now has increased awareness about conservation options should they change their mind in the future. As in fundraising, approaching people for land donations also requires patient cultivation. Building relationships is the key.

The approaches listed below involve proactive landowner contact; however, the possibilities are good that some landowners will take the lead in contacting City to discuss the donation or sale of their land. This is particularly likely if City or its partners are active in the area, have a good reputation with landowners and the community, and have provided good communication regarding conservation land securement programs and tax incentives to landowners. Being associate members of the Ontario Land Trust Alliance also encourages City to follow its guiding principles in dealing with landowners and conducting conservation land securement business. These principles, from the Canada Land Trust Alliance Standards and Practices (2005) which OLTA follows include:

- Integrity - maintaining and enforcing high standards of conduct;
- Perpetual Responsibility - obligation to protect the lands and properties that they care for in perpetuity;
- Excellence - strive to provide the best service possible; and
- Good Governance – making good, transparent, fair and defensible decisions.

The initial steps associated with landowner contact include developing a landowner contact list, preparing landowner packages and property mapping. These activities can be undertaken by City staff or by an experienced third-party contractor. The landowner contact program will include the elements described in the sections below. These elements are based on years of experience in implementing these programs on the ground with landowners but regional factors also come into play.

The basic approach as listed below includes the following elements:

- Developing a landowner contact list
- Mailing a package of information to the landowner
- Following up with a phone call(s)
- Schedule a property visit to discuss options with interested landowners

Approaches that are more personal should be applied where relationships or connections with landowners on the list already exist. For example, encouraging local councilors, City staff and/or other members of the community to initiate contact with known landowners through a phone call or quick drop in is sometimes all it takes to initiate conservation land securement discussions. These initiations through a known and trusted source usually get the best results. For properties where the landowner is not known through City contacts, mailing a package first so the call and/or drop in is not completely unannounced is a better way of establishing contact with landowners and lets them review background materials in advance of contact. This also allows the landowner to ask questions when you call and reduces the amount of follow up later on. Additionally, using mailings to follow up with landowners where relationships have been initiated are a good way to keep and maintain the relationship, especially if the landowner is not able to participate in a conservation land securement project at the present moment but may in the future. Other methods include holding 'neighbour to neighbour' kitchen table meetings (i.e., through City, a friendly landowner hosts a meeting and invites other neighbours to learn new information and discuss topics relating to securement and stewardship) or holding community workshops on securement or related topics to establish landowner leads (this will also bring in a wider audience than the specific landowner list unless it is by invite only).

a) Developing a Landowner Contact List

Using the recommended CLSPC, a landowner list is developed for each priority area. Landowner contact information needs to be collected (e.g., mailing address, phone number) so that packages can be mailed and followed-up on. For areas where partners are directly involved in landowner contact (e.g., TRCA or the ORMLT), these landowners can be included on the list, but the contact can be left to the partner organization, therefore reducing duplicate efforts. This is why communication between partner conservation organizations is so important. Staff should screen the list to be sure to have an understanding of the history and current level of contact that exists with the identified landowners. Any contact initiative must be coordinated with ongoing programs in the watershed. Other staff must be consulted to see if they are aware of landowners interested in discussing acquisition options.

b) Mailing

This will involve sending out an introductory letter, a brochure outlining the various long-term securement options, an optional photo mosaic map of the subject property (potentially showing ecological features), Ecogifts Program brochures and if appropriate, and City program brochures. The goal here is to introduce the landowner to the material and 'break the ice' so that a telephone call can be made several weeks later (see Telephone Contact below), following up on the material provided.

c) Telephone Contact

This step involves calling identified landowners to introduce them to the program, identify other program information they may be interested in and attempt to arrange a meeting with the appointed conservation land securement representative to discuss the program and landowner options. It is highly recommended that this step follow the 'mailing' step so that the telephone call is not a 'cold call'. If the landowner is not interested in any long-term securement options at this time, then the conservation land securement representative can offer to educate them on stewardship programs that may be of interest.

d) Drop-Ins

On occasion, drive to priority areas and drop in on properties for sale or properties that are ecologically significant to engage the landowner in the securement or stewardship program. This is a necessary action for landowners who are unreachable via the telephone or who have unlisted contact information.

e) Scheduled Site Visits

Once a contacted landowner expresses interest in the program, a landowner visit can be scheduled and a Property Evaluation Form filled out. This may include a site visit of the property or a detailed discussion of the initial landowner package that was sent to them. At this time, more information can be provided to the landowner about the potential conservation options available to them. It is always emphasized to the landowner that they need to seek professional legal and financial advice before making any decisions.

f) Landowner Leads

This involves following up on leads from various community individuals, organizations and municipalities. These will be followed up after discussion with the referring agency on the appropriate next steps.

g) Timelines & Expectations

It is recommended that in Year 1 of implementing this Strategy, 100-150 landowners be contacted in increments of 50 landowners at a time to allow for adequate follow up. The first landowners to be contacted are those that have expressed positive past experience with the City (e.g., landowners with past participation in stewardship projects, volunteers). Even if the results bring about several interested landowners, landowner contact, with a focus on land donations can continue.

The number of landowners contacted in subsequent years can be adjusted based on landowner response from previous years, however 100-150 landowners per year is a general recommended number. Based on other landowner contact programs, there is an expected response rate of 10-20% from landowners who are interested in learning more about conservation. Of these, a smaller percentage will be interested in detailed securement discussions. The focus of Year 2's work not only involves contacting new landowners, but also requires continual follow-up with contacts previously established in Year 1. Sometimes it can take several years to cultivate a relationship with a landowner to earn trust before they will make a decision involving their land. The process is repeated every year, with new contacts established, and continued relationship-building with those who express interest in the program.

h) Other Items of Discussion

The main goal of having a landowner contact program is to secure more ecologically sensitive lands. However, there are also two other advantages to having this program which the City can directly benefit from. Even if a landowner decides not to become involved in permanently conserving their land, they may decide to support the City and its mission through a financial contribution. By assisting the City secure other surrounding lands, the landowner can enhance private personal enjoyment of their property while increasing their property value.

Another advantage to this landowner contact program is the spin off message about the long-term stewardship options available to landowners.

Besides mailing packages as described above, another method of communicating long-term securement information to landowners is to add this information to the City website. This will allow landowners to review donation information posted on the site and contact the City proactively if interested. In addition, the City is encouraged to give presentations to the various groups and clubs (e.g., Rotary Club) in the area, as another means of educating the public and landowners about conservation options and tax benefits.

Some landowners who are considering long-term options for the protection of their property can be very skeptical of whether or not they will have a guarantee that the land they donate would never be sold, or the natural heritage features altered, in the future. The long-term protection of their properties is definitely a concern from the landowner's perspective. The City will need to consider its key messaging and policies relating to long-term protection and securement, in order to communicate this to landowners and alleviate any concerns they may have.

The above steps recommend using a staff person from the City, a contractor, or third-party agency. One advantage to using a third-party agency for initial landowner contact is that the landowner is contacted by someone at arm's length with the City; representing the consortium of conservation partners, therefore minimizing any preconceived notions that the landowner may have about the City. As a result, the contact person may have a better chance of getting the securement message across and keeping the lines of communication open with the landowner.

8) PROTECTING LAND THROUGH OTHER MEANS

In the broadest sense, conservation land securement aimed at protecting ecosystem features and functions requires a range of tools including planning policy, voluntary stewardship and acquisition. These tools vary in their protective functions. The preferred securement method depends on many factors including the sensitivity of the feature, permanence needed, public access or use, applicable

planning policies or regulations, funding availability, perceived threats, opportunity and urgency. A case-by-case assessment should be undertaken to determine the quality and significance of the natural resources or functions of each property. Land held in public ownership by a government agency or non-profit land trust is viewed as the most secure means of protecting the landscape and is the only reliable means of providing opportunities for the public to experience natural areas through direct interaction. Because not every landowner of natural heritage lands will consider a land securement option, other land conservation tools are also important and each has a role to play in protecting natural lands within the City.

a) Development Controls through the Planning Process

As part of the City's involvement in the planning process under the Planning Act, (e.g., Official Plan Amendments, Draft Plans of Subdivision, re-zoning and land severance applications) environmentally significant areas may be identified through supporting studies and where appropriate designated open space, environmental protection or other designation to restrict future development exists. The opportunity to acquire some of these lands may arise from time to time. City staff will review these opportunities as they arise. This process is reactionary as it only occurs once a landowner makes a Planning Act application. Further, the landowner is possibly less open to negotiation at the point of anticipating a permit.

In order to receive approvals, the proponent must convey land or an easement for conservation or parkland. The result is not always an ideal amount or configuration of protected land, but a compromise. Nevertheless, this is a worthwhile conservation practice to continue.

In addition, the City should continue to encourage landowners to re-designate and re-zone lands that have undergone ecological restoration. This change in zoning from the original use to a conservation zoning would ensure future protection of the environmental feature(s) and possibly a change in property taxes if the changes make the province's conservation lands or managed forest tax programs accessible.

9) COMPLETING LAND SECUREMENT PROJECTS

After a landowner shows interest and they have had some time to contemplate the options, staff will have to evaluate the methods of securing the property. Presumably, the property is one that City is interested in pursuing. In the early stages, there may be some 'quick win' properties that are secured quickly because they were already in the negotiation stage. However, situations may arise where multiple projects and/or limited funds necessitate evaluating and prioritizing individual projects against each other. Then there are the questions surrounding just what will this cost for the project itself but also the long term management of the new property. This section addresses all of those concerns.

a) Prioritizing Multiple Projects

In order to evaluate potential securement opportunities in an efficient manner, it is recommended that a Conservation Land Securement Committee (CLSC) be established consisting of staff. The purpose of the CLSC is to screen potential conservation land securement initiatives to focus time and resources on the most ecologically significant securement opportunities. The CLSC would consist of internal staff members who may include but are not limited to a project manager, staff familiar with asset management and real estate transactions, ecologist, planner, landscape architect, and a private landowner stewardship contact person. The CLSC would typically meet monthly or less depending on securement opportunities.

It is recommended that the CLSC will work to develop two property securement lists. List one would outline 'active' properties for securement, and list two would identify 'potential' properties for securement. The list of potential securement opportunities is developed first and will include those new properties that have been brought to the attention of the conservation land securement representative, whether this person is staff or contractor, and warrant further consideration. Once a candidate property has been identified, a property evaluation involving desk top analysis and where necessary, field investigation will be undertaken. This will provide an assessment of the ecological significance of the property in the context of the priority areas identified. Further, the desire of the City to acquire the property and the landowner's interest in working with the City to develop a mutually acceptable transaction will need to be assessed. This could take the form of a fee-simple purchase, donation, or easement. Depending on the property history and preliminary site evaluation, additional environmental studies may also be required (e.g., Phase 1 and 2 Environmental Assessments).

Properties that have been moved on to the active list will then be pursued for securement upon review and recommendation by the C.A.O. and approval of City Council. To prioritize how important any given property would be, an evaluation matrix could be used. This will involve identifying the funding source or program to secure the property whether it is a purchase, easement or donation). Once the funding is determined, the field representative will proceed to secure the property (e.g., negotiate agreement, obtain appraisal, commission survey, etc.).

When assessing the suitability of land for securement, consideration will be given to the cost of taxes and long-term maintenance of the property when being secured by one of the City's partners. An agreement in principle to include the land under a management agreement between the City and its securement partner can alleviate this concern.

b) Disposition Policy

The City should document necessary steps for purchasing land including provisions for the appraisal process and bidding in a Conservation Land Securement and Disposition Policy. This type of policy is important because it will set out the necessary steps for purchasing land including provisions for the appraisal process, bidding and conflict of interest. For any land purchases involving the Ecogifts Program, appraisals must be done in accordance with their Terms of Reference as well.

If the City decides to sell land, (without a CEA on title), the sale requires the same degree of consideration be applied to the appraisal process and conflict of interest. Further, if a property is being registered through the Ecogifts Program there are additional considerations, which must be discussed before a sale can occur. When pursuing both land and conservation agreements, MNR must be involved. It is recommended that these policies and procedures be stated in the Conservation land securement and Disposition Policy and offer separate provisions for Sales, Transfers and Exchanges. Public perception is a big part of land conservation but especially those involving sale of lands. Clear communication to the public should be part of the conservation land securement approach so that the City's reputation as a conservation organization is not hindered.

During the process of securing ownership of lands through purchase, donation or bequest, the City may receive lands that contain only portions of ecologically significant features or none at all. Generally, the sale of public lands containing provincially significant features is not endorsed. Through the development and refinement of the natural heritage system reports for City's areas of focus, lands may be identified as surplus due to limited or no ecological significance and low habitat restoration potential. The funds from these surplus land sales can be used to fund the securement of other ecologically sensitive lands.

The City has to decide whether they have interest in exchanging land or transferring land (other than upon dissolution). The City should evaluate other potential conservation owners in its area and discuss the potential to transfer conservation lands should it ever become unable to carry out its ownership responsibilities. It is ideal to have land stewardship and maintenance funds available to transfer to a new conservation owner. Where the land still warrants protection but the City determines that another conservation group would be better suited to manage the property, such lands can be transferred with a land holding agreement to ensure it remains protected.

c) Due Diligence Considerations

Once a landowner of a target property has expressed interest to work with the City or a securement partner to conserve or sell the land, there should be additional assessment and due diligence components to employ and review:

- confirm ownership to ensure the correct representative is negotiating. This can be done in a preliminary title search
- appraisal to determine fair market value to Ecogift standards if it is a donation or fair price if it is a sales, legal fees,. There can be an exception with purchases if there is a high degree of confidence in values of comparable sales
- survey by an Ontario Land Surveyor (OLS) if boundaries are in questions, reports, etc. These are outlined below:
- site inspection during a time of no snow cover and if deemed necessary from that inspection, a Phase 1 Environmental Assessment may be done

d) Appraisals

While the City is not a member of the Ontario Land Trust Alliance, which follows the Canadian Land Trust Alliance (CLTA) Standards and Practices, it would be beneficial to follow the standards for Conservation Land Securement. Operating to such high standards demonstrates transparency and credibility in spending tax dollars. The CLTA Standards and Practices (2005) state in Standard 9 (j), “When the land trust buys land, conservation agreements or other real property, it obtains a qualified independent appraisal to justify the purchase price,” and in Standard 10 (b) that, “the donor/land trust should use an independent qualified appraiser who is certified by the Appraisal Institute of Canada and who follows the Canadian Uniform Standards of Professional Appraisal Practice.”

In addition to the standards noted above, to qualify for the Ecogifts Program and potentially other funding programs, the City cannot do the appraisal itself. Instead, “all appraisals must be at arm’s length from the parties to the transaction [...] Similarly, appraisals done by the recipient are not acceptable” (Environment Canada, 2005, p. 2). Since a vast majority of the City’s securement projects would apply to one or more of these programs, the appraisal must be done by an independent contractor.

It is clear that periodically the City needs to engage the services of appraisers to place a value on conservation lands intended for securement and application for securement funding. Different appraisers may be retained for different property valuations, different areas, and different property complexities. This variation necessitates an appraisal policy to ensure that the appraisers are being hired and conducting the appraisals in a consistent fashion.

It may also be in the best interest of the City's time and resources to obtain a 'letter of interest' from the landowner about a potential securement project before spending the time and money on an appraisal. It should not be too strict in its wording to prevent alienating the landowner but it may be helpful in gauging a landowner's real interest.

e) Legal

In land transactions, the City retains their own legal advice from a lawyer or notary experienced with real estate law. It should also promote that the landowner(s) also involved in the transaction receive their own independent legal advice about the transaction, legal documentation and implications.

f) Survey

A survey should be conducted where financially feasible to clearly determine the exact boundaries of the new property lines (if a partial taking, split receipt or conservation easement) or the existing property lines (for a full purchase or donation). In some cases, a copy of the original survey may be enough to satisfy both parties.

g) Baseline Documentation Report (for Conservation Agreements)

A Baseline Documentation Report is created for conservation easements to document the existing conditions at the beginning of the easement. This enables baseline data to compare the condition of the property in the future. The Ontario Heritage Trust has a useful template for these reports.

h) Financing a Conservation Land Securement Program

The City has never had a formal pro-active Conservation Land Securement Strategy or Program.

Adequately budgeting for the full life cycle costs of properties is essential. The following sections outline the costs associated with acquisitions in the past few years, which is a reliable indication of projected costs over the coming years.

In order for the City to budget for securement projects, the following cost projections are provided for a property. Just one fee-simple land donation could have the following approximate securement costs associated with it:

TABLE 6: ESTIMATED PROJECT TRANSACTION COSTS FOR FEE SIMPLE LAND DONATION

Item	Estimated Cost	Description
Appraisal	\$4,000 - \$7,000	
Legal	\$1,500 - \$4,000	
Survey	\$2,500 - \$15,000	
Phase 1 Assessment	\$2,000 - \$4,000	
Baseline Documentation Report	\$8,000 - \$13,000	primarily for conservation easement agreements; a record of the ecological, physical and cultural features of a property at a point in time, need trained staff
Staff/contractor time	\$4,000 - \$9,000	Dedicated staff time to implement landowner contact, negotiations, etc
Total (incl. BDR)	\$22,000 - \$52,000	
Total (not incl. BDR)	\$16,000 - \$39,000	

In addition to the securement ‘transaction’ costs outlined above, the cost of the property itself must be budgeted. As part of the development of this Conservation Land Securement Strategy, numerous appraisals were reviewed, and the selling price of various properties was also researched. Land values in the region within 80 km of the City differ depending on location, property characteristics (vista, grade, soil type, drainage, etc.), and land use designation/zoning. Available data for agricultural and forested properties, without development potential suggest a value range of between \$15,000 and \$500,000 per acre. A number of factors influence the wide range such as access, utility, location and especially, size. For example, a parcel smaller than one acre may be strategic for acquisition, but because of the economy of scale, the dollar value per acre will be on the high side of the range.

Outright fee-simple purchase of properties is the most effective way to ensure protection of lands for conservation purposes in perpetuity. For fee-simple purchases and split receipts, long closing dates (6 to 12 months) should be negotiated to allow for fundraising. Furthermore, an escape clause can be established if funds raised are insufficient by a certain date, eliminating the risk to the City. Such a strategy has been proven successful in project-specific fundraising campaigns. A recent example was Bruce Trail Conservancy’s acquisition of Rush Cove on the Bruce Peninsula. This was a \$700,000 offer to purchase with nine months to close. The call to action of having a real deal created a very successful result with all the money raised for the purchase price, securement and stewardship costs.

As described above, an Option to Purchase scenario allows the City to buy a property at a set price for a stipulated period of time. This mechanism not only gives the City a means of ‘buying time’ in its attempts to acquire a specific piece of land but it also provides the perfect opportunity for fundraising. There is no greater success in the conservation land securement community than when a ‘call for support’ is expressed. The sense of urgency to raise funds for a key property is always a good recipe for success. Many conservation organizations have secured key properties this way by calling on individuals, partners, members and corporations to assist in buying and protecting a particular property. When this

type of campaign is done properly, the money is usually raised at the pre-determined goal, and is sometimes exceeded.

i) Loans & Mortgages

Though not desired, in some special circumstances, securing a loan may be appropriate as part of an acquisition process. Any type of loan to close on a property should be considered in only three cases:

- When there is income derived from the property that should provide a positive cash flow;
- When the loan is acting as short-term bridge financing; or
- When there is zero or low interest and there is sufficient time before the end term to raise the required amount

j) Stewardship & Endowment Funds

This Strategy is recommending the securement and ownership of more lands by the City as one component of the overall approach to manage, restore and improve the Natural Heritage Network. In order to provide adequate resources in perpetuity for properties to cover stewardship and maintenance related activities, a detailing of costs is necessary for each acquired property (both fee-simple and conservation easement properties). Costs should include both infrequent and short-term costs (e.g., tree planting, fencing) and repetitive and long-term costs (e.g. property taxes, insurance, clean-up, monitoring, etc.). The costs can be categorized as those that are administrative (Category A below), or stewardship and maintenance related (Category B below). There is obviously more direct stewardship and maintenance required on City-owned land versus land under conservation easement agreement. Examples of costs are listed below as well as their likelihood for fundraising.

k) Land Administration – Carrying Charges

Typical ongoing costs of land securement include: taxes (for securement partners), drainage apportionments, risk management, insurance, access, perimeter signage, fencing for neighbours or trespass (note - difficult to fundraise for and more reliant on endowment funding).

l) Conservation Stewardship – Managing Sites based on City Mission

Typical costs to manage City-owned properties for conservation purposes include: conservation fencing, prescribed burns, habitat restoration, planting, removal of invasive species, Interpretive signage, trail maintenance, partner/volunteer support, community relations.

Typical costs to manage both City-owned and easement properties for conservation purposes include inventory and site monitoring (note – higher likelihood of fundraising for projects but also the object of endowment fundraising).

Once the City has a detailed understanding of long-term land costs, a strategy for managing these in perpetuity can be developed. In the event that the City increases the amount of land protected, it is recommended that the City establish a Stewardship Endowment Fund, based on current and future costs of its Conservation Land Securement Program (for both fee-simple and conservation easement agreements). An easy way to implement this fund is to have a policy whereby any new property secured must have a Stewardship Endowment Fund in place before the property closes and the amount required to generate 5% interest a year for budgeted stewardship activities is included in the overall fundraising costs. It can become part of the securement proposal. Sometimes the best person to ask to contribute to this fund is the landowner. Who better to see the property protected and stewarded in perpetuity than the person who has nurtured the lands for so long?

The fund is generally managed as a separate fund, with income (e.g., interest) allocated for stewardship and maintenance purposes. Up to 5% of income in any one year is allocated for stewardship purposes. Income above 5% remains in the fund to offset annual inflation, grow the fund and protect the purchasing power of the endowment over time. This type of fund would ensure that funding for most maintenance and land-related costs is secure. For special projects that may be periodic and require additional funding (e.g., restoration), further fundraising may be required. The amount required in the fund would be determined from the projected stewardship costs and would change over time as the City property portfolio changes.

m) Enforcement or Legal Defense Funds

In addition to having a Stewardship Endowment Fund, it is important to consider having a Legal Defence Fund for the City's easement properties. For example, in the event where a conservation easement agreement has been violated, the City will take every measure possible to mitigate the situation with the landowner in a mutually agreeable fashion. However, this approach may not always be successful and may require the support of legal counsel, or involvement in legal proceedings. The cost of defending an easement can be considerable. By having a separate Legal Defence Fund, these funds could be properly allocated, tracked and managed to ensure that they are in place when needed. The determination of the amount for the fund could be based on the number of conservation easements held by the City and the likelihood of risk to these easements.

It is the responsibility of the City to uphold its conservation easements and set a precedent for other landowners. Therefore, by having a Legal Defence Fund, it shows the community and future easement landowners that the City is serious about enforcing its easements and protecting the natural features of the watershed.

10) COMMUNICATING SUCCESS

The term ‘success breeds success’ is highly applicable to the securement of ecologically sensitive lands. Unless highly confidential for whatever reason, once there is the ‘success’ of securing a property within a given area, the City should give careful consideration to the messaging and leveraging of this accomplishment to create even more success. Whether the property was purchased or donated, a single success can be used to generate local, regional or even provincial attention, which in turn can lead to increased funding, an increase in interested landowners and an increase in partnership support. Especially in the case of land donations, this may encourage other landowners to do the same. This landowner can in turn be invited to act as a champion in their area of the watershed. Below are some recommendations for communicating success in the City.

Recommendations for Community Communications and promoting conservation land securement

- Ensure that all partners involved in the securement of a property are given proper Recognition;
- Invite local, regional, provincial and federal politicians to the event (as appropriate).
- Ensure that the event or success is covered by all forms of local and regional media (e.g., newspaper, television, radio);
- Ensure that the event is communicated through internal media like newsletters, websites, and landowner brochures outlining conservation options etc; and
- Use the media articles, newsletters, brochures or other internal communications to send to interested partners, landowners, etc.
-

11) CONCLUSION

This Conservation Land Securement Strategy is a comprehensive land securement planning document, which outlines methods for the creation of an informed and effective land securement initiative for the purposes of long-term natural heritage land protection in Vaughan. The Strategy has illustrated initial recommendations to implement a conservation land securement program and has suggested criteria to consider when focusing conservation land securement efforts, including ways to engage landowners (landowner contact program), the full list of securement options, suggestions for preferred securement tools by audience, and finally, considerations for working with individual landowners.

This document is the foundation of a strategic conservation land securement program at the City. It will require dedicated, trained staff to implement the recommendations in the years to come. The Strategy

summarizes all the aspects for a successful program that should be implemented on the ground with willing landowners.

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ATTACHMENT 3

Summary of NHN Study Phases 2 to 4 Consultation Feedback - November 2013 to May 2014

Contact	Location/ Subject	Comments/Submission	City Response
<p>Sheri Taylor, Chippewas of Georgina Island</p> <p>Received December 12, 2013</p>		<p>Confirmed receipt of notification and requested to be kept informed of the NHN Study process.</p>	<p>The Chippewas of Georgina Island were subsequently contacted in accordance with the consultation protocol approved by York Region.</p>
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received January 15, 2014</p>	<p>17 Millwood Parkway (Major Mackenzie east of Pine Valley)</p> <p>Block 40</p>	<p>Woodlands. "Although the property contains mature trees, the species are predominately non-native and the property is maintained in a manicured state. Furthermore, this area does not reflect that of a natural feature and would not qualify as a Woodland as defined in the Official Plan."</p> <p>Off-site watercourse. "Based on preliminary aerial photo interpretation, it is apparent that the headwaters of this feature have been removed by the recent subdivision development north and south of Major Mackenzie Drive. As well, the remaining feature north of Major Mackenzie Drive appears to have a limited catchment area and likely has an ephemeral flow regime. As such, further study of the watercourse is required to confirm flow regime and mapping should be revised to reflect existing conditions."</p>	<p><u>Woodlands</u> The existing NHN in Schedule 2 of VOP 2010 does not extend to include the woodland on this parcel. The NHN has not been changed to include the woodland as Core Features.</p> <p>In the event of an application, woodland protection should be evaluated according to the policies in s. 3.3.3 of VOP 2010 and using the City Tree Protection By-Law.</p> <p><u>Watercourse</u> The City explored several approaches to characterize the watercourses. Based on evaluation of existing data in watershed plans and digital data sources and conversations with MNR, York Region and the TRCA, information regarding thermal regime and/or flow regime of watercourses is not suitably detailed to make decisions at a City-wide scale to remove watercourses from the NHN. As a result, the watercourse layer will be used to map Core Features. In the event of an application, more detailed studies will be required to determine if the watercourse is to be maintained as a natural feature or can be modified as per policy 3.2.3.11.</p>
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received January 27, 2014</p>	<p>2575 King- Vaughan Road</p> <p>Block 28</p>	<p>Watercourse "Based on preliminary aerial photo interpretation, it appears that the identified watercourse is an ephemeral drainage feature. Further investigation in the NHN study is required to determine whether this drainage feature is a Core Feature, as it does not appear to have sufficient catchment area to qualify as an intermittent or permanent watercourse, and as such would not qualify as a Core Feature."</p> <p>Waterbody "Further discussion with MNR is warranted as to</p>	<p><u>Watercourse and Waterbody</u> The City explored several approaches to characterize the watercourses. Based on evaluation of existing data in watershed plans and digital data sources and conversations with MNR, York Region and the TRCA, information regarding thermal regime and/or flow regime of watercourses is not suitably detailed to make decisions at a City-wide scale to remove watercourses from the NHN. Similarly, the waterbodies layer also includes kettle wetlands and areas of natural impoundments as well as what appear to be dug ponds. As a result, the watercourse layer and waterbodies layer will be used to map Core Features until better information is available. In the event of an application, more detailed studies will be required to determine if the watercourse and/or waterbody are to be maintained as Core Features or can be modified as per policy 3.2.3.11.</p>

Contact	Location/ Subject	Comments/Submission	City Response
	2575 King-Vaughan Road (continued)	<p>the inclusion of this feature in the PSW complex, as it appears to be a man-made agricultural pond.”</p> <p>York Region Greenlands “Although we recognize that the York Greenlands layer (purple) has been taken from the York Region Official Plan, it does not accurately reflect actual site conditions. What is presently indicated largely encompasses what is currently an agricultural field.”</p> <p>Meadowlands “[The] NHN mapping identifies a portion of the subject property as “Meadowlands”. We do not feel the mapping is accurate, and revision is required based on existing site conditions.”</p>	<p>The City notes that these features are within the ORM Natural Linkage designation, such that policies of the ORMCP apply.</p> <p>The York Region Greenlands includes the ORM Natural Linkage and ORM Natural Core designations.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be identified as areas of significant wildlife habitat and included as Core Features or as candidate significant wildlife habitat and depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p>
S. Ventura Received April 30, 2014	4050 and 4100 King-Vaughan Road Block 42	<p>It is noted in E-mail correspondence that:</p> <ul style="list-style-type: none"> - They wish to be notified of upcoming meetings (mailing addresses for notices are provided in the correspondence; - Object to Enhancement Areas identified on the properties at 4050 and 4100 King-Vaughan Road; and - Requested a rationale for the identification of Enhancement Areas. 	<p>The City responded by E-mail on May 1, 2014. A meeting with the property owners took place on May 21, 2014 and the revised NHN mapping was explained.</p>
Humphries Planning Group Received February 25, 2014	7300 and 7370 Martin Grove Road	<p>Recommends that a preliminary channel realignment on the property be considered by the City.</p>	<p>The existing drainage channel and floodline determined by The Municipal Infrastructure Group Ltd (TMIG), and provided in the submission to the City, generally follows the watercourse layer available from the MNR and the “crest of slope” information provided by the TRCA. As a result, the NHN layer will be modified based on watercourse and “crest of slope” layers to be consistent with decisions taken elsewhere in the City.</p> <p>Should channel realignment be approved through a development application, and to the satisfaction of the TRCA, then changes to the NHN can be made according to policy 3.2.3.11 allowing for minor modifications to Core Features.</p>
Julianna MacDonald (jmacdonald@beaconenviro.com)	9290 McGillivray Road Block 60	<p>It is recommended to remove a drainage feature from the Core Features mapping as field work completed on April 3, 2014 suggests that the feature is ephemeral.</p>	<p><u>Headwater Drainage Feature</u> The City explored several approaches to characterize the watercourses. Based on evaluation of existing data in watershed plans and digital data sources and conversations with MNR, York Region and the TRCA, information regarding thermal regime and/or flow regime of watercourses is</p>

Contact	Location/ Subject	Comments/Submission	City Response
<p>Received May 1, 2014</p>	<p>9290 McGillivray Road (continued)</p>	<p>York Greenlands mapping includes an area on the property that is not associated with a feature.</p> <p>It is recommended that the delineation of the valley feature be determined in the field rather than based on the “crest of slope” digital data.</p> <p>Recommend to remove the “meadowlands” data layer.</p> <p>Suggest that previous Council-approved ‘Open Space’ designations have no relevance to the NHN.</p>	<p>not suitably detailed to make decisions at a City-wide scale to remove watercourses from the NHN. As a result, the watercourse layer will be used to map Core Features. In the event of an application, more detailed studies will be required to determine if the watercourse is to be maintained as a natural feature or can be modified as per policy 3.2.3.11.</p> <p><u>York Region Greenlands</u> While the City is not in a position to alter the York Greenlands map, the City will take the comments into consideration in the refinement of the NHN. According to the Greenlands System policies in the ROP, particularly policy 2.1.4, approval of the local “greenlands system” will essentially become the Regional Greenlands System in Vaughan.</p> <p><u>Valleylands</u> The City agrees that the appropriate feature limits and vegetation protection zone associated with a valley or stream feature be determined through appropriate analysis, including field investigations. For the purposes of the VOP 2010 schedule, the crest of slope information will be used unless the feature limit data is available through an approved application.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be identified as areas of significant wildlife habitat and included as Core Features or as candidate significant wildlife habitat and depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p> <p><u>Previous Council Approvals of ‘Open Space’</u> ‘Open Space’ and/or ‘Valleyland’ designations in previous Council-approved Official Plan Amendments (OPAs), of a scale of a Secondary Plan (such as OPA 600, OPA 601, OPA 610, and OPA 640), must be considered as decisions of Council. While it is understood that the designations in OPAs of this scale are delineated in a general manner, any significant discrepancies between the revised NHN and previous Council approvals for ‘Open Space’ designations will need to be justified.</p>

Contact	Location/ Subject	Comments/Submission	City Response
<p>Amber Stewart Law (amber@amberstewartlaw.com)</p> <p>Received January 15, 2014</p>	<p>11211 Weston Road Block 34 West</p>	<p>Removal of Core Features on a portion of woodland/plantation outside of the Greenbelt Plan boundary.</p> <p>“The modifications were presented to the Board in a motion on December 2, 2013, filed by Ms. Rosenberg on the consent of both the City and the Toronto and Region Conservation Authority. After the hearing of the motion, the Board issued an oral Decision approving the modifications. We will forward a copy of the Board’s formal Order once issued.”</p>	<p>The NHN boundary is modified to reflect OMB approvals for OPA 637 and VOP 2010 (Appeal #37). The City notes that the area is subject to a Block Plan and final determination of NHN boundaries, including possible woodland compensation, will be determined through the more detailed Block Plan process.</p>
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received January 16, 2014</p>	<p>12000, 12020 and 12060 Jane Street Block 35 East</p>	<p><u>Watercourse</u> “... the watercourse along the eastern portion of the lands are conveyed through an existing culvert from the online pond located on the property identified as 12000-12020 Jane Street. The current alignment identified as Core Feature that extends east to Jane Street is not associated with any natural feature, and as such is inaccurate. As well, the western portion of the indicated Core Feature does not reflect an appropriate setback from the feature and will require refinement through further study and block plan application.”</p> <p><u>Waterbodies</u> “Preliminary field work of the subject lands as completed by Beacon has identified three waterbodies that are indicated on the NHN mapping, that are not reflective of existing conditions.”</p> <p><u>Meadowlands</u> “With respect to “Meadowlands” (i.e., open grassy fields), indicated on the property identified as 12060 Jane Street, the area identified does not accurately reflect site conditions as the watercourse is conveyed through wetland vegetation dominated by cattail marsh.”</p>	<p><u>Watercourse</u> The City agrees that the Core Features intended to reflect a watercourse at the eastern end of the property is incorrectly delineated. This section of the Core Features mapping is removed. However, the western portion (approximately ¾ length of the parcel from Hwy 400) is clearly a drainage feature. As such, the Core Features will remain on this part of the drainage feature. Precise delineation of the drainage feature is subject to the detailed Block Plan assessment.</p> <p><u>Waterbodies</u> The waterbodies layer includes kettle wetlands and areas of natural impoundments as well as what appear to be dug ponds. As a result, the waterbodies layer will be used to map Core Features until better information is available. Confirmation of the waterbodies as Core Features is subject to the detailed Block Plan assessment.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p>

Contact	Location/ Subject	Comments/Submission	City Response
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received January 15, 2014</p>	<p>12111 Pine Valley Drive</p> <p>Block 42</p>	<p>Woodland. Recommendation to remove 'Enhancement Area' delineation on the tableland.</p> <p>Meadowlands "Because the "Meadowlands" data layer is a coarse one and is now seven years old, it was our understanding that "meadowlands" would require field verification and that this was to have been undertaken in the summer of 2013 as part of Phase 2 of the NHN study. We respectfully request that the mapping be corrected and updated to reflect the actual on-site conditions that exist today (i.e., cultivated fields and/or anthropogenic areas surrounding existing or former buildings)."</p>	<p><u>Woodlands</u> The western portion of the property at Pine Valley Drive is identified by York Region as woodlands. It is tableland woodland delineated in the Rural Focus Area Woodland Ecosystem Assessment as Stand 42-02 and rated as having 'moderate' function. Hence, the woodlands have been changed from Enhancement Areas to Core Features.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p>
<p>Don Fraser (Beacon) and Humphries Planning Group</p> <p>Received December 6, 2013</p>	<p>Vaughan Mills Centre – Employment Lands</p>	<p>Meadowlands "Because the "Meadowlands" data layer is a coarse one and is now seven years old, it was our understanding that "meadowlands" would require field verification and that this was to have been undertaken in the summer of 2013 as part of Phase 2 of the NHN study. We respectfully request that the mapping be corrected and updated as soon as possible to reflect the actual on-site conditions that exist today (i.e., cultivated fields)."</p>	<p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p>

Contact	Location/ Subject	Comments/Submission	City Response
<p>Margherita Bialy (Cachet Developments)</p> <p>Received November 26, 2013</p>	<p>10971 Jane Street</p> <p>Block 27</p>	<p>Several process questions are posed in the submission and answered in the City Response column.</p> <p><u>Question 1 from M. Bialy of Cachet Developments:</u> <i>Does preliminary mapping of development limits exist for Block 27 and 10971 Jane Street?</i></p> <p><u>Question 2 from M. Bialy of Cachet Developments:</u> <i>What is the status of environmental investigations completed or underway as part of the NHN study in Block 27?</i></p> <p><u>Question 3 from M. Bialy of Cachet Developments:</u> <i>How can I access GIS mapping used during the NHN study? Is the City's GIS database available for public viewing?</i></p>	<p><u>Preliminary Mapping</u> The Natural Heritage Network (NHN) Study will not be setting precise development limits as this is more appropriate using more detailed information provided in the development application and review process for the Block 27 Block Plan and MESP. Refinements to the Core Features and Enhancement Areas of the NHN in the City of Vaughan is the subject of Phase 3 of the NHN study. A second round of consultation took place in the late Winter and early Spring of 2014.</p> <p><u>Status of Environmental Investigations</u> The City can provide raw data of field sampling should there be any sample locations at 10971 Jane Street for headwater drainage feature sampling or wildlife surveys. The City's consultants were provided permission to enter parts of Block 27 for those parcels that are part of the landowners' group.</p> <p><u>Access to GIS Mapping</u> The City does currently not have the capacity to make the GIS information available to the public. Once a corporate GIS strategy is in place that allows for sharing of GIS layers with the public, then the data layers pertinent to the NHN will be identified and the appropriate data release agreements put in place to share such information. Until then, Adobe Acrobat maps have been made available.</p>
<p>Gatzios Planning and Development Consultants</p>	<p>8682 Hwy 27</p> <p>Block 59</p>	<p>Noted in written correspondence that detailed comments are forthcoming regarding recommended corrections to mapping.</p>	<p>The City met with agents representing landowners for Block 59 as part of the consultation strategy for the NHN Study.</p>

Contact	Location/ Subject	Comments/Submission	City Response
<p>Aird and Berlis LLP</p> <p>Received December 1, 2013</p>	<p>4603 and 4611 Hwy 7</p>	<p>The purpose of the letter was to request a meeting.</p> <p>“... part of the developable portion of the Site has been included in the Study area. This land runs easterly from the Jersey Creek valley system but is beyond the top of bank staked with the TRCA on May 9, 2007 and associated 10 metre setback. Additionally, as set out in the enclosed letter from the TRCA, dated May 28, 2009, our client has agreed to provide monetary compensation to the TRCA for the assessed loss of this partial feature. Consequently, this land has been incorporated into the proposed development scheme as the location of a future stormwater management facility. We respectfully request that the NHN boundary be revised to be consistent with the TRCA staked top of bank and 10 metre setback.”</p> <p>“... request notification of any proposed amendments to the VOP 2010 resulting from this (the NHN) Study”</p>	<p>A conference call between the City and agents for the applicants was conducted on January 28, 2014.</p> <p>For the purposes of the NHN Study, the City cannot anticipate the final development limits as the application should proceed through development review. As such, the “crest of slope” and woodland layers will continue to be used to delineate the NHN boundary.</p> <p>This is a situation where loss of habitat of a significant feature is not acceptable as a minor modification. Rather, such modifications to Core Features should be considered as part of a habitat compensation protocol to allow for solutions, where appropriate, that represent a balanced approach to planning to provide suitable developable area and appropriate habitat compensation so that there is a net ecological gain to the NHN.</p>
<p>Brad Bricker (Plan B Environmental) and Yurij Pelech (EMC Group)</p> <p>Received November 29, 2013</p>	<p>SE Nashville Road and Hwy 27</p>	<p>A preliminary EIS and staking limits are provided.</p>	<p>The proposal is not yet a formal application to the City of Vaughan and the final development limits are not set. As a result, the NHN can be modified to reflect the same limits as the York Region Greenlands trimmed to the property line until such time as the development limits are established through the development review process. The City notes that the “crest of slope” extends north to Nashville Road in the vicinity of Hwy 27.</p>
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received January 15, 2014</p>	<p>NE Corner Pine Valley and King-Vaughan Rd</p> <p>Block 42</p>	<p>Request that drainage features not be recognized as Core Features.</p>	<p><u>Drainage Features</u></p> <p>The City explored several approaches to characterize the watercourses. Based on evaluation of existing data in watershed plans and digital data sources and conversations with MNR, York Region and the TRCA, information regarding thermal regime and/or flow regime of watercourses is not suitably detailed to make decisions at a City-wide scale to remove watercourses from the NHN. As a result, the watercourse layer will be used to map Core Features. In the event of an application, more detailed studies will be required to determine if the watercourse is to be maintained as a</p>

Contact	Location/ Subject	Comments/Submission	City Response
	NE Corner Pine Valley and King-Vaughan Rd (continued)	Enhancement Area delineation includes drainage feature.	<p>natural feature or can be modified as per policy 3.2.3.11.</p> <p><u>Enhancement Area</u> A tableland woodland delineated in the Rural Focus Area Woodland Ecosystem Assessment as Stand 42-02 and rated as having 'moderate' function was depicted on Schedule 2 as an Enhancement Area. Hence, the woodlands have been changed from Enhancement Areas to Core Features. An Enhancement Area continues to be depicted to support the woodlands and drainage features as a linkage area connecting the Greenbelt Plan area in Vaughan to the Greenbelt Plan area in the Town of King. Criteria for Enhancement Area linkages are provided in Section 7 of the NHN Study Report by North-South Environmental Inc.</p>
Humphries Planning Group Received December 9, 2013	10951 Kipling Avenue Block 48	Revise NHN according to studies provided by Beacon as part of application review process and, in particular, the Natural Heritage Evaluation by Beacon of February 2013.	The application was recommended by staff for approval, but deferred by Council. Hence, changes to the NHN according to the application submission documents cannot be made at this time.
BILD York Chapter Chair Received December 5, 2013	Comments are not specific to a particular Block or parcel.	<p>Several points are addressed in the letter dated December 5, 2013 and summarized below:</p> <p>“There are great possibilities that rest within designated Greenbelt and Oak Ridges Moraine Areas that would benefit from the proper ecological investment of removing invasive species and planting and managing woodlands.”</p> <p>“The “meadowlands” layer on the maps recently released by the City is an inaccurate representation of actual land use in many places throughout Vaughan and is considerably out of date, as we understand it has been interpreted from 2006 aerial photography.”</p> <p>“The Enhancement Areas (as depicted in the NHN Study mapping) pose significant barriers to appropriately designing, developing and building complete communities. We believe that the application of Enhancement Areas needs to be better balanced with Growth Plan objectives and targets, and not prioritized above all other land-uses. The primary objective of these</p>	<p><u>Provincial Plan Areas</u> Consideration of NHN scenarios and the Conservation Land Securement Strategy are intended to investigate the role of the Greenbelt Plan and ORMCP areas in Vaughan as part of the NHN.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be depicted as Enhancement Areas in any refinement of the NHN.</p> <p><u>Enhancement Areas</u> Revised criteria for Enhancement Areas are provided in Section 7 of the consulting team report. North-south linkage opportunities are identified in two specific locations (Robinson Creek and upper Purpleville Creek) and potential Enhancement Areas for open country species are identified in two locations. Criteria for enhancing woodland interior conditions are described, but not specifically mapped as there are a wide range of options and securement approaches that the City can pursue.</p>

Contact	Location/ Subject	Comments/Submission	City Response
	BILD York Chapter (continued)	<p>Enhancement Areas should be to strengthen/augment the core areas rather than to provide “links” between natural areas.”</p> <p>“We note that there are some discrepancies with the existing mapping of woodlands as currently the mapping depicts woodlands in areas that are fields or even developed with housing. We would suggest a comprehensive review of the mapping to correct any inaccuracies.”</p> <p>“Finally, we strongly believe that any new NHN areas should be accompanied by an appropriate operation and maintenance strategy. The economic and financial impact of this strategy on the future taxpayers of the City of Vaughan also needs to be carefully considered.”</p>	<p><u>Mapping Discrepancies</u> A range of information sources were used by the consulting team to correct mapping discrepancies and to recognize existing development approvals, including: recent orthoimagery; property boundaries and zoning data provided by the City; approved Block Plans; and inventory mapping from the City Parks Development department.</p> <p><u>Operation and Maintenance Strategy for the NHN</u> Maintaining and improving ecological conditions of a natural heritage system in an urbanizing landscape requires a management program. The NHN Study, through the consulting team reports and the staff reports, begins to address the issue of a work program to maintain and improve the NHN over time, such as through land securement, stewardship, and alignment of City departmental objectives to continue to define standards and practices to reduce ecological impacts of urbanization.</p>
C. Milani, The Milani Group of Companies Received November 28, 2013	Comments do not pertain to specific parcels	<p>Excerpts from the E-mail message are provided below.</p> <p><u>Deadline for Comments on the NHN Study</u> “The Public Comment deadline for the Natural Heritage Network Study is November 29th, however, it seems a Working Session Report has already been prepared prior to that deadline.”</p> <p><u>TRCA Role as a Commenting Agency</u> “The TRCA is a commenting agency and nothing more. Vaughan should administer its own environmental guidelines within its own departments and not rely on the TRCA in any way shape or form.”</p> <p><u>Minimum Setbacks</u> “Setbacks to any eventually identifiable environmental feature should be 10m, unless some piece of legislation says otherwise.”</p>	<p><u>Deadline for Comments on the NHN Study</u> The November 2013 date for comments pertains to the draft Environmental Management Guideline (EMG). It has been identified throughout the public consultation meetings that further consultation in the late Winter and Spring of 2014 will be provided.</p> <p><u>TRCA Role as a Commenting Agency</u> It is appropriate to review the draft EMG and identify items which require TRCA approval and those items in which TRCA can provide input based on their knowledge and expertise. A similar exercise was undertaken for policies in Chapter 3 of the VOP 2010.</p> <p><u>Minimum Setbacks</u> Minimum vegetation protection zones, such as 10 metres for woodlands and valleylands outside of Provincial Plan areas, are identified in the policies in Chapter 3 (Environment) of the VOP 2010. However, the Provincial Policy Statement requires an assessment of adjacent lands to natural features to determine the appropriate vegetation protection zone. The Natural Heritage Reference Manual provides guidance on the assessment of adjacent lands in order to delineate an appropriate vegetation protection zone, which is not necessarily a minimum.</p>

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	C. Milani, The Milani Group of Companies (continued)	<p><u>Inconsistent Mapping</u> “We believe the mapping is massively inconsistent across the <i>entire City</i> and does not reflect features that are necessarily worthy of protection as well as not identifying features that are worthy of protection. Such inconsistencies include, but are not limited to, identified core or enhancement areas that do not have any environmental significance, wetlands that don’t exist, features that don’t convey water or have any vegetation, open space zones that are currently designated employment/commercial or residential (with businesses and homes on them), enhancement areas on golf courses etc.... We cannot support the mapping as drafted. “</p> <p><u>ORMCP and Greenbelt Plan</u> “Further, the entire Oak Ridges Moraine and Greenbelt seem to be “blanket included” in the NHN for absolutely no ecological reason. If they are protected by Legislation (and they are), that should suffice. Vaughan Council already passed a Planning Act document to bring their official plan into conformity with the Oak Ridges Moraine Plan (OPA 604), so another OPA for an NHN is redundant.”</p> <p><u>Requests Notwithstanding Clause</u> “On December 11th, 2012 (Item 2, Report No. 51, Committee of the Whole (Working Session)), Vaughan Council passed a resolution stating the following:</p> <p style="padding-left: 40px;">“That a notwithstanding clause, similar to that found in Section 5.4 b) of OPA 604 amending OPA 332 (Oak Ridges Moraine Conformity OPA) be incorporated into the NHN Inventory and Improvement Plan for those areas within the jurisdiction of the municipality” (Attached for reference)</p>	<p><u>Inconsistent Mapping</u> Existing data layers have been provided as part of the public consultation strategy. The most frequent feedback during Phase 1 of the NHN Study was to provide maps of the data being evaluated as part of the Study. Data layers have been provided in Adobe Acrobat format to provide an opportunity for stakeholders to provide input into the goal to refine the NHN in the City of Vaughan. Some of the information, such as the meadowlands data layer, provide background information, but are not designations. ‘Open Space’ and/or ‘Valleyland’ designations in previous Council-approved Official Plan Amendments (OPAs), of a scale of a Secondary Plan (such as OPA 600, OPA 601, OPA 610, and OPA 640), must be considered as decisions of Council. While it is understood that the designations in OPAs of this scale are delineated in a general manner, any significant discrepancies between the revised NHN and previous Council approvals for ‘Open Space’ designations will need to be justified, such as by noting development approvals. The City welcomes more specific comments to correct the NHN based on appropriate evidence.</p> <p><u>ORMCP and Greenbelt Plan as Part of the NHN</u> Policies 3.2.3.18 and 3.2.3.19 of the VOP 2010 recognize that the ORMCP and Greenbelt Plan have been developed by the Province with a focus on natural heritage protection. These policies also specifically note that the Natural Core and Natural Linkage of the ORMCP and the Natural Heritage System overlay “are a focus for enhancement and securement initiatives to further support Vaughan’s Natural Heritage Network”. Proposed amendments to Schedule 2 also include a focus on the Natural Core and Natural Linkage of the ORMCP and the Natural Heritage System overlay as specific legend items.</p> <p><u>Notwithstanding Clause</u> The draft EMG is intended to provide guidance for the submission of an Environmental Impact Study and a Master Environment and Servicing Plan. It is not appropriate to include a “notwithstanding clause” in a guidance document. However, the City will record the comment for the purposes of the draft and final reports of the NHN Study. Further, it should be noted that the “notwithstanding clause” referenced as part of the ORMCP pertains to lands in the Settlement designation of the ORMCP and to consider a vegetation protection zone less than that specified in Table 1 of OPA 604. That is, a vegetation protection zone less than 30 metres can be considered in the areas where municipal plan policies apply rather than Provincial Plan policies. This condition is already met in the policies of VOP 2010.</p>

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		<p>The only location for the word “notwithstanding” in the entire document is on pg 23 and it does not reference in any way the intent of the above motion.</p>	
<p>Don Fraser, Beacon Environmental</p> <p>Received November 25, 2013 and March 28, 2014</p>	<p>Block 55</p>	<p>Submissions were provided identifying updated information based on field studies conducted by the agents for submissions related to the Block Plan application.</p>	<p>Block 55 was the subject of a Block Plan application process (Block Plan File 55.2013) recommended by City staff for approval at the Committee of the Whole meeting of May 13, 2014. Discrepancies between the revised Schedule 2 and the approved NHN as part of the Block Plan application can be made as part of the City’s response in the technical report following the Public Hearing on June 17th, 2014.</p>
<p>Remington (Luch Ognibene) and Beacon Environmental (Don Fraser)</p>	<p>Block 60 East</p>	<p>Headwater tributary of East Robinson Creek is not associated with a feature.</p> <p>Request that the NHN delineation of the valley feature of the Humber River consider the top-of-bank staking provided.</p> <p>A number of issues regarding the east-west Enhancement Area are noted.</p> <p>Suggest that previous Council-approved ‘Open Space’ designations have no relevance to the NHN.</p>	<p><u>Headwater Drainage Features</u> All drainage features are included in the NHN. An appropriate assessment of headwater drainage features (HDFs) is required should the lands be the subject of a development application in the future. Should changes to the Core Features be warranted, this can occur through VOP 2010 policy 3.2.3.11 regarding minor modifications to Core Features and 3.3.1.5 regarding modifications to watercourses.</p> <p><u>Valley Limits</u> The City agrees that the appropriate feature limits and vegetation protection zone associated with a valley or stream feature be determined through appropriate analysis, including field investigations.</p> <p><u>Enhancement Areas</u> The Enhancement Areas delineation was discussed in a meeting on February 24th, 2014 between the City, the City’s consulting team and the landowners and their agents. The City’s consulting team also recognized the impacts of existing infrastructure related to the Enhancement Area. It was agreed that the Enhancement Area would be removed based on the limited ecological rationale.</p> <p><u>Previous Council Approvals of ‘Open Space’</u> ‘Open Space’ and/or ‘Valleyland’ designations in previous Council-approved Official Plan Amendments (OPAs), of a scale of a Secondary Plan (such as OPA 600, OPA 601, OPA 610, and OPA 640), must be considered as decisions of Council. While it is understood that the designations in OPAs of this scale are delineated in a general manner, any significant discrepancies between the revised NHN and previous Council approvals for ‘Open Space’</p>

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	Block 60 East (continued)	<p>Suggest that the York Region Greenlands layer is greatly exaggerated.</p> <p>Meadowlands mapping should be corrected and updated to reflect actual site conditions.</p>	<p>designations will need to be justified.</p> <p><u>Greenlands Layer</u> While the City is not in a position to alter the York Greenlands map, the City will take the comments into consideration in the refinement of the NHN. According to the Greenlands System policies in the ROP, particularly policy 2.1.4, approval of the local “greenlands system” will essentially become the Regional Greenlands System in Vaughan.</p> <p><u>Meadowlands</u> The meadowlands information provided by the TRCA is being used together with actual observations of grassland/open country species to recommend potential areas for grassland/meadow management. These may be depicted as Enhancement Areas in any refinement of the NHN.</p> <p>The meadowlands habitat type will not be depicted on a revision of the NHN in Schedule 2.</p>
<p>Gaetano Franco, Castlepoint</p> <p>Received April 8, 2014</p>	Block 62	<p>Reports were provided to the City regarding the “Natural Heritage Existing Conditions” and “Opportunities/Constraints”</p>	<p>City staff and the City’s consultants met with the landowners on April 8, 2014 and confirmed the general agreement between the information provided to the City and the NHN information obtained by the City’s consultants.</p>
<p>Julianna MacDonald (jmacdonald@beaconenviro.com)</p> <p>Received March 28, 2014</p>	Block 34/35	<p>Agents for the landowners provide a recommended NHN based on field observations and air photo interpretation in Figures 3A to 3C of the letter to the City.</p> <p>Specific issues are raised in reference to particular properties.</p>	<p>The City notes that the lands are part of the Hwy 400 North Employment Lands and policies are provided in Section 11.4 of the VOP 2010. It is noted on page 11-116 of the VOP 2010 that, “... the environmental designations in the Employment Area will be examined in detail during the Block Plan process, which provides the flexibility to finalize the actual extent of the designations”.</p>